EM5.3A P/M

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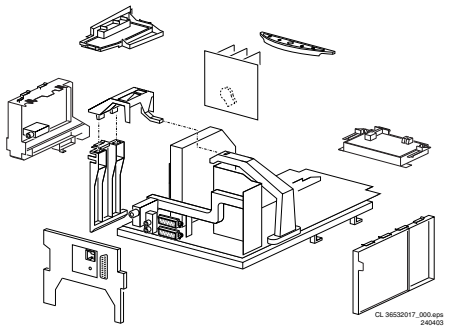

Service Manual

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Published by WO 0472 Service PaCE Printed in the Netherlands Subject to modification EN 3122 785 14610

PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

1.1 Technical Specifications
1.2 Connection Overview
1.3 Chassis Overview

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

1.1 Technical Specifications

1.1.1 Vision

Display type	:	CRT-DV-RF
Screen sizes	:	29” (74 cm), 4:3
	:	32" (82 cm), 16:9
	:	34" (86 cm), 4:3
Tuning system	:	PLL
Colour systems	:	NTSC 3.58, 4.43
	:	PAL B/G, D/K, I, M
Video playback	:	NTSC 3.58, 4.43
	:	PAL B/G, D/K, I, M
	:	SECAM B/G, D/K, L/L’
Channel selections	:	100 presets
	:	UHF
	:	VHF
	:	Hyper-band
	:	S-band
Aerial input	:	75 ohm, Coax
	:	IEC-type

1.1.2 Sound

Sound systems	:	FM/FM B/G (except 29PT9221),
	:	NICAM B/G, D/K, I, L
	:	2CS D/K (29PT9221)
Maximum power	:	4 x 15 W rms (int.)
	:	3 x 15 W (29PT9221)

1.1.3 Miscellaneous

Mains voltage	:	90 - 276 Vac(/56/69)
	:	220 - 240 Vac(/79/93)
Mains frequency	:	50 / 60 Hz
Ambient temperature	:	+5 to +45 °C
Maximum humidity	:	90 % R.H.
	:	
Power consumption	:	
- Normal operation	:	≈ 109 W
- Standby	:	< 1 W

1.2 Connection Overview

Note: The following connector color abbreviations are used (acc. to DIN/IEC 757):
Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

Note: figures below can deviate slightly from the actual situation, due to the different set executions.

1.2.1 Top Control and Front / Side Connections

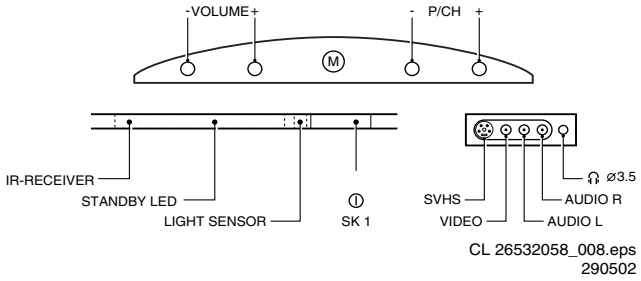


Figure 1-1 Top control and Front / Side connections

S-Video: In

1	- Ground	Gnd
2	- Ground	Gnd
3	- Y	1 V_pp / 75 ohm
4	- C	0.3 V_pp / 75 ohm

Cinch: In

Ye	- Video-CVBS	1 V_pp / 75 ohmfmsymbol
Wh	- Audio - L	0.5 V_rms / 10 kohm
Rd	- Audio - R	0.5 V_rms / 10 kohm

Mini Jack: Headphone - Out

- Headphone	32 - 600 ohm / 10 mW

1.2.2 Rear Connections

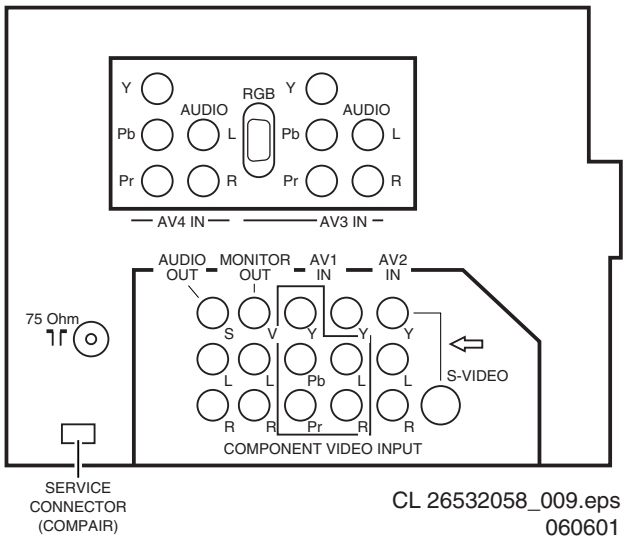


Figure 1-2 Rear view

Aerial - In

- IEC-type	Coax, 75 ohm

Audio-out (except on 29PT9221)

1	- Audio	S (0.5 Vrms / 10 kohm
2	- Audio	L (0.5 Vrms / 10 kohm)
3	- Audio	R (0.5 Vrms / 10 kohm)

Monitor out

1	- Video	1 Vpp / 75 ohm
2	- Audio	L (0.5 Vrms / 10 kohm)
3	- Audio	R (0.5 Vrms / 10 kohm)

AV1 in

1	- Y	0.7 Vpp / 75 ohm
2	- Pb	0.7 Vpp / 75 ohm
3	- Pr	0.7 Vpp / 75 ohm

AV1 in

4	- Video	1 Vpp / 75 ohm
5	- Audio	L (0.5 Vrms / 10 kohm)
6	- Audio	R (0.5 Vrms / 10 kohm)

AV2 in

1	- Video	1 Vpp / 75 ohm
2	- Audio	L (0.5 Vrms / 10 kohm)
3	- Audio	R (0.5 Vrms / 10 kohm)

AV2 in (SVHS)

1	-	Gnd
2	-	Gnd
3	- Y	1 Vpp / 75 ohm
4	- C	0.3 Vpp / 75 ohm

AV3 in (D-sub connector)

1	- Pr (R)	0.35 Vpp (0.7 Vpp) / 75 ohm
2	- Y (G)	0.7 Vpp (0.7 Vpp) / 75 ohm
3	- Pb (B)	0.35 Vpp (0.7 Vpp) / 75 ohm
4	- H	5 Vpp / 1 kohm
5	- V	5 Vpp / 1 kohm

AV3 and AV4 in (cinch)

1	- Y (G)	0.7 Vpp (0.7 Vpp) / 75 ohm
2	- Pb (B)	0.35 Vpp (0.7 Vpp) / 75 ohm
3	- Pr (R)	0.35 Vpp (0.7 Vpp) / 75 ohm

AV3 and AV4 in (cinch)

1	- Audio	L (0.5 Vrms / 10 kohm)
2	- Audio	R (0.5 Vrms / 10 kohm)

1.3 Chassis Overview

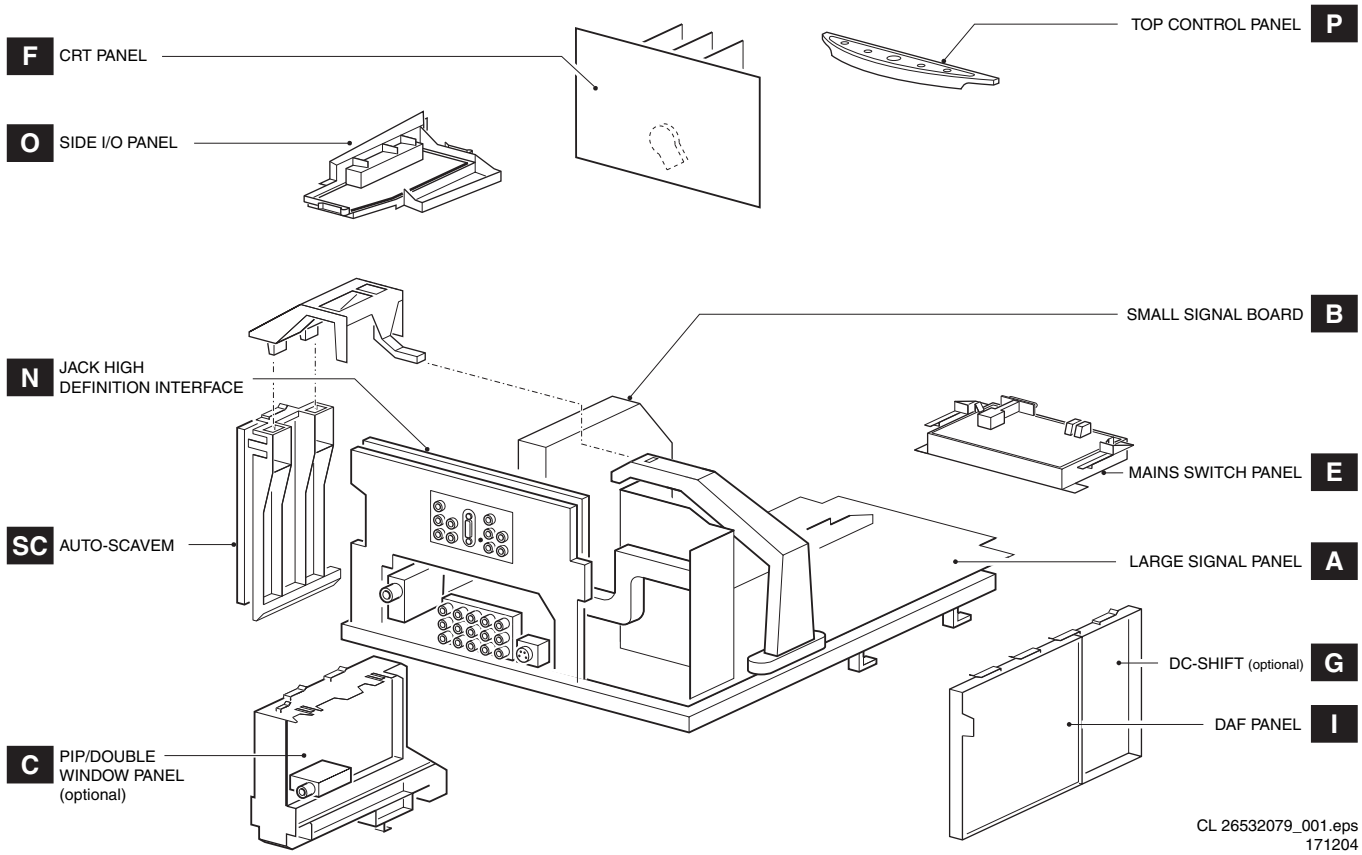


Figure 1-3 PWB locations

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

2.1 Safety Instructions
2.2 Maintenance Instructions
2.3 Warnings
2.4 Notes

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

2.1 Safety Instructions

Safety regulations require that **during** a repair:

- Due to the chassis concept, a very large part of the circuitry (incl. deflection) is “hot”. Therefore, connect the set to the mains via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.
- Wear safety goggles when you replace the CRT.

Safety regulations require that **after** a repair, you must return the set in its original condition. Pay, in particular, attention to the following points:

- General repair instruction: as a strict precaution, we advise you to re-solder the solder connections through which the horizontal deflection current is flowing. In particular this is valid for the:
  1. Pins of the line output transformer (LOT).
  2. Fly-back capacitor(s).
  3. S-correction capacitor(s).
  4. Line output transistor.
  5. Pins of the connector with wires to the deflection coil.
  6. Other components through which the deflection current flows.

Note: This re-soldering is advised to prevent bad connections due to metal fatigue in solder connections, and is therefore only necessary for television sets more than two years old.

- Route the wire trees and EHT cable correctly and secure them with the mounted cable clamps.
- Check the insulation of the mains cord for external damage.
- Check the strain relief of the mains cord for proper function, to prevent the cord from touching the CRT, hot components, or heat sinks.
- Check the electrical DC resistance between the mains plug and the secondary side (only for sets that have an isolated power supply). Do this as follows:
  1. Unplug the mains cord and connect a wire between the two pins of the mains plug.
  2. Turn on the main power switch (keep the mains cord unplugged!).
  3. Measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection of the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch the TV “off” and remove the wire between the two pins of the mains plug.
- Check the cabinet for defects, to prevent the possibility of the customer touching any internal parts.

2.2 Maintenance Instructions

We recommend a maintenance inspection carried out by qualified service personnel. The interval depends on the usage conditions:

- When a customer uses the set under normal circumstances, for example in a living room, the recommended interval is three to five years.
- When a customer uses the set in an environment with higher dust, grease, or moisture levels, for example in a kitchen, the recommended interval is one year.
- The maintenance inspection includes the following actions:
  1. Perform the “general repair instruction” noted above.
  2. Clean the power supply and deflection circuitry on the chassis.
  3. Clean the picture tube panel and the neck of the picture tube.

2.3 Warnings

- In order to prevent damage to ICs and transistors, avoid all high voltage flashovers. In order to prevent damage to the picture tube, use the method shown in Fig. 2-1, to discharge the picture tube. Use a high voltage probe and a multi-meter (position V_dc). Discharge until the meter reading is 0 V (after approx. 30 s).

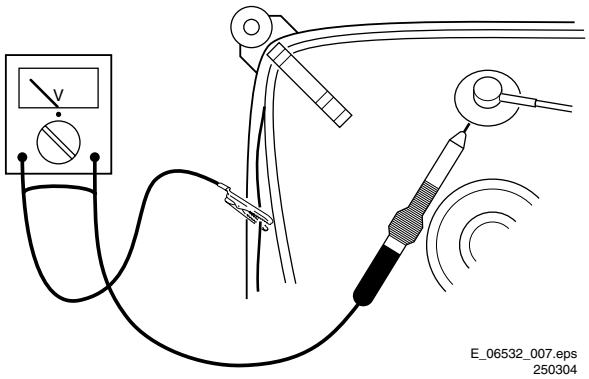


Figure 2-1 Discharge picture tube

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD, ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this potential. Available ESD protection equipment:
  – Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  – Wristband tester 4822 344 13999.
- Together with the deflection unit and any multi-pole unit, flat square picture tubes form an integrated unit. The deflection and the multi-pole units are set optimally at the factory. We do not recommend adjusting this unit during repair.
- Be careful during measurements in the high voltage section and on the picture tube.
- Never replace modules or other components while the unit is “on”.
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.4 Notes

2.4.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry.
- The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5 “Service Modes, ...”) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⊓) and without (⊼) aerial signal. Measure the voltages in the power supply section both in normal operation (⏻) and in standby (⏲). These values are indicated by means of the appropriate symbols.
- The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. “Dolby”, “Pro Logic” and the “double-D symbol”, are trademarks of Dolby Laboratories.

2.4.2 Schematic Notes

- All resistor values are in ohms and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are expressed in micro-farads (µ= x 10^-6), nano-farads (n= x 10^-9), or pico-farads (p= x 10^-12).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Electrical Replacement Parts List. Therefore, always check this list when there is any doubt.

2.4.3 Rework on BGA (Ball Grid Array) ICs

General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal

As is the case with any component that, it is essential when removing an (LF)BGA, the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has shown to result in problems during re-soldering.

Device Replacement

The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers.
To reflow the solder, apply a temperature profile according to the *IC data sheet*. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information

For more information on how to handle BGA devices, visit this URL: *www.atyourservice.ce.philips.com* (needs subscription, not available for all regions). After login, select “Magazine”, then go to “Workshop Information”. Here you will find Information on how to deal with BGA-ICs.

2.4.4 Lead Free Solder

Philips CE is going to produce lead-free sets (PBF) from 1.1.2005 onwards.

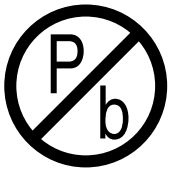


Figure 2-2 Lead-free logo

This sign normally has a diameter of 6 mm, but if there is less space on a board also 3 mm is possible.

Regardless of this logo (is not always present), one must treat all sets from this date onwards according to the next rules.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able
  - To reach at least a solder-tip temperature of 400°C.
  - To stabilise the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch “off” unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly to avoid mixed regimes. If not to avoid, clean carefully the solder-joint from old tin and re-solder with new tin.

- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened short before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-)pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection !).
  Do not re-use BGAs at all!
- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt wether the board is lead-free or not (or with mixed technologies), you can use the following method:

- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid mix of two alloys).

Caution: For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website *www.atyourservice.ce.philips.com* (needs subscription, but is not available for all regions)
You will find this and more technical information within the "Magazine", chapter "Workshop information".
For additional questions please contact your local repair-helpdesk.

2.4.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages**. While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following website:
http://www.philips.com/support

4. Mechanical Instructions

Index of this chapter:

4.1 Service Connector (for ComPair)
4.2 Set Disassembly
4.3 Service Positions
4.4 Assembly / Board Removal
4.5 Set Reassembly

Note: Figures below can deviate slightly from the actual product, due to different set designs.

4.1 Service Connector (for ComPair)

To perform service diagnostics with ComPair, it is not necessary to disassemble the set. You simply have to connect the ComPair interface box, with the appropriate cable, to the service connector (on the rear of the set, see figure below), and start the ComPair program (see chapter 5).

4.2 Set Disassembly

Follow the disassembly instructions below.

4.2.1 Back Cover Removal

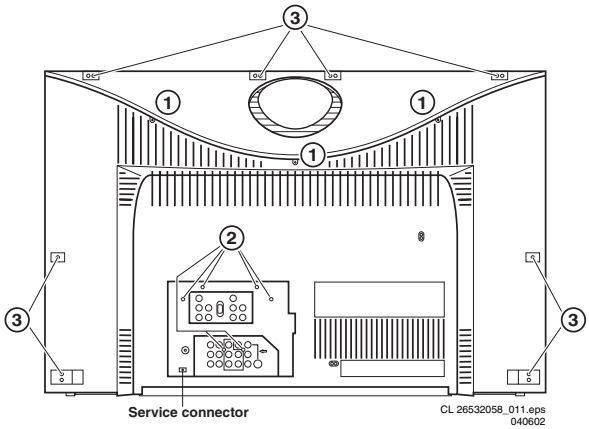


Figure 4-1 Rear Cover Removal

Warning: Disconnect the AC power cord before you remove the back cover.

First, remove the top cover (plate with “saucer”):
1. Remove the three screws [1] that hold the cover plate.
2. Pull the cover (horizontally) backward.

To access the electronics of the set, you must remove the back cover:
1. Remove the screws [2] of the rear jack panel cover plate.
2. Remove the remaining screws [3] at the two sides, and the top of the back cover.
3. Remove the back cover. Make sure that wires and cables are not damaged while removing the cover.

4.2.2 Subwoofer Removal

Caution: Do not disconnect the loudspeaker cable from the subwoofer box while the set is operating, because the class-D amplifier cannot handle a change in load during operation. There is no problem when the subwoofer is disconnected **before operation**, but a change from connected to disconnected **during operation** can damage the amplifier.

1. Disconnect the loudspeaker cable at the top of the subwoofer box.
2. The subwoofer is fixed in the bottom plate with two “rubber feet”.
3. Pull the subwoofer box upwards, and remove it.

4.3 Service Positions

This chassis has several predefined service positions, for better accessibility. They are explained below in more detail.

4.3.1 Control-Jack-High-Definition-Interface Panel Solder Side

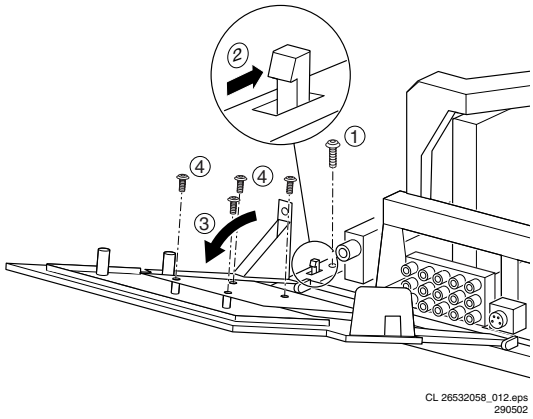


Figure 4-2 Service position 1

To remove or access the “Control-Jack-High-Definition-Interface” panel, do the following:
1. Remove the screw [1].
2. To release the peg, push it toward the CRT [2].
3. At the same time, pull the complete module away from the LSP [3]. It hinges in the LSP bracket.
4. To remove the panel, remove the four panel screws [4].

4.3.2 LSP Component Side

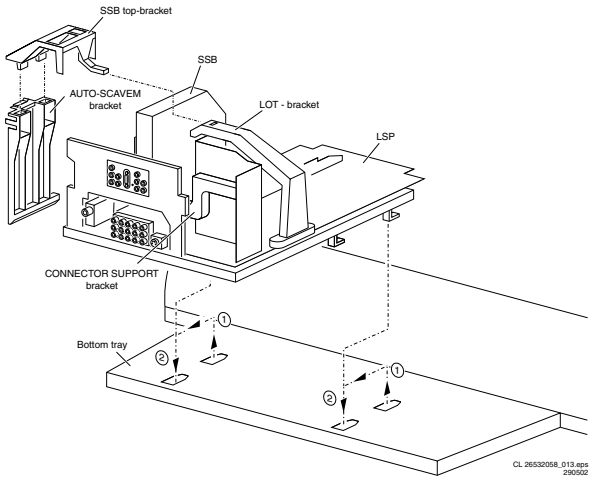


Figure 4-3 Service position 2

To better access the component side of the LSP, do the following (see figure above):
1. Remove the LSP bracket from the bottom tray by pulling it backwards.

2. Hook the bracket in the first row of holes of the bottom tray. In other words, reposition the bracket from [1] to [2].

4.3.3 LSP Solder Side

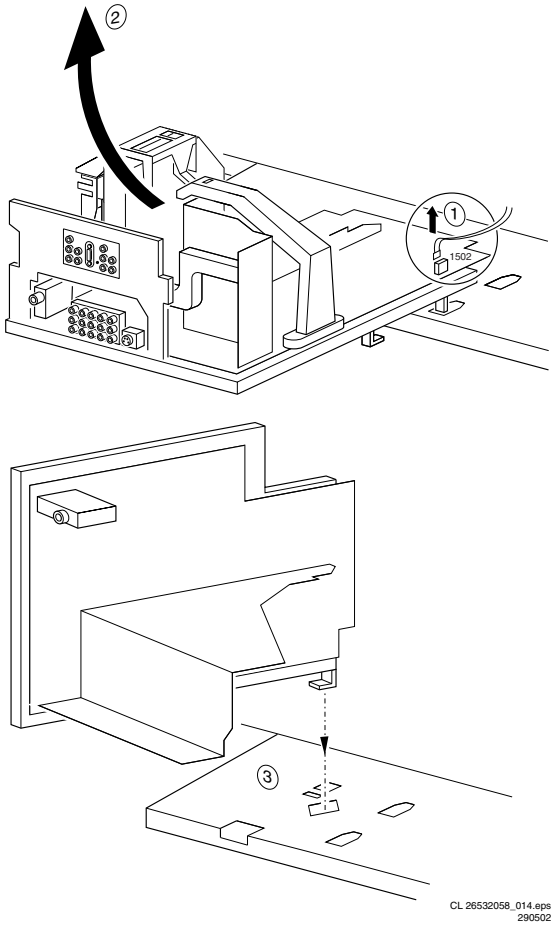


Figure 4-4 Service position 3

To access the bottom side (solder side) of the LSP, do the following (see figure above):

1. Remove the DAF module (see paragraph “DAF Assembly/ Panel” below).
2. To disconnect the degaussing coil from the LSP, remove the cable from connector 1502 [1].
3. Release the wires from their clamps to make room to reposition the LSP.
4. Turn the LSP 90 degrees clockwise [2], and place it in the hole at the left side of the bottom tray [3].

4.3.4 Small Signal Board (SSB)

There is no predefined service position for the SSB. Most test points are located on the A-side (the side that faces the tuner). If you have to replace ICs, you must take the complete SSB module out of the SIMM-connector.
Note: For access to the A-side, it is necessary to remove the Auto-Scavem assembly (at the left side of the SSB). See the description in the “Auto-Scavem Assembly/Panel” section below.

To access the SSB test points, do the following:

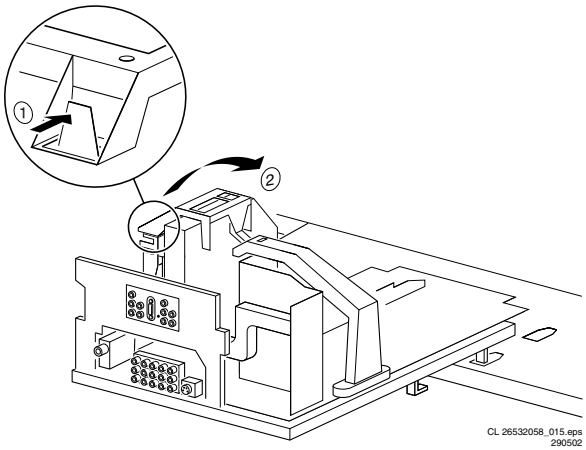


Figure 4-5 SSB removal (part 1)

1. Put the LSP in service position 2 (as described above).
2. Release the two clamps at the top of the SSB bracket [2] and pull the bracket upward (it hinges in the bracket on the LOT side).
3. You can now remove the complete SSB bracket.

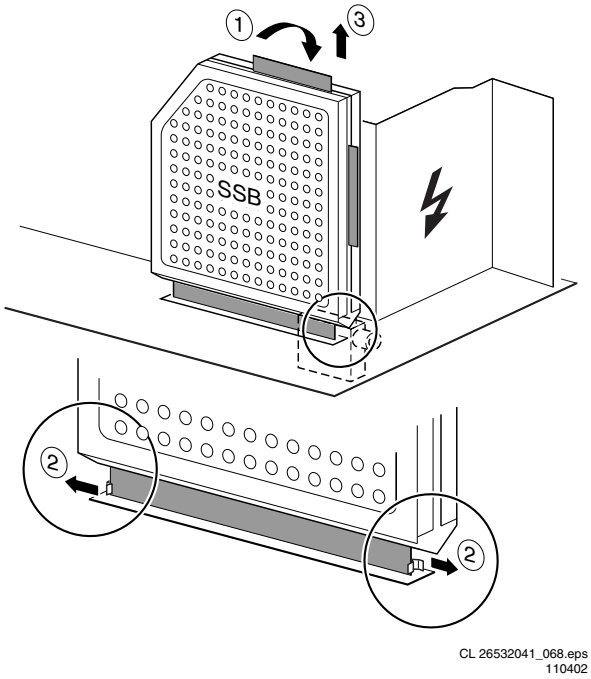


Figure 4-6 SSB removal (part 2)

1. Push the top of the SSB toward the LOT [1].
2. Due to the pressure, the two metal clamps at both sides of the SIMM-connector will release [2].
3. Take the complete SSB out [3].

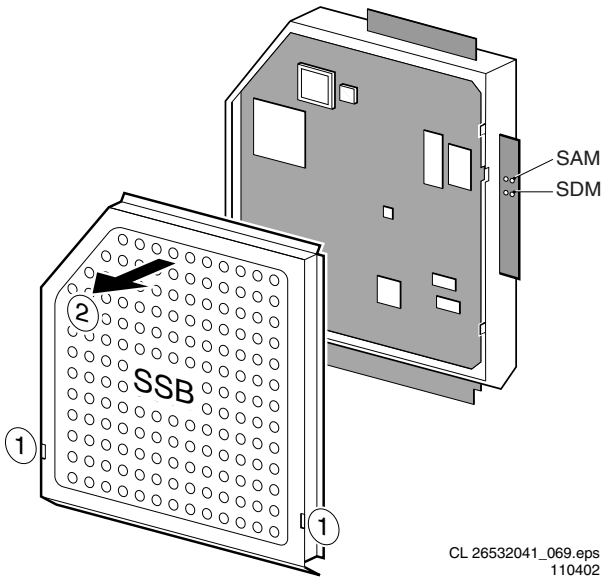


Figure 4-7 SSB removal (part 3)

1. Once you have taken out the SSB, remove the shieldings [2]. Sometimes it is necessary to unsolder some solder tags before doing this [1].
2. Replace the SSB module in the SIMM-connector in reverse order.

Notes:

- For better access to the SSB, it is possible to order an "extension board," which is part number **9965 000 05769**.
- If it is necessary for measurements, you can put the LSP in "service position 2" (as described above).

4.4 Assembly / Board Removal

Sometimes, it may be necessary to swap a complete assembly or Circuit Board Assembly (CBA). This procedure is explained below.

4.4.1 Top Control Assembly/Panel

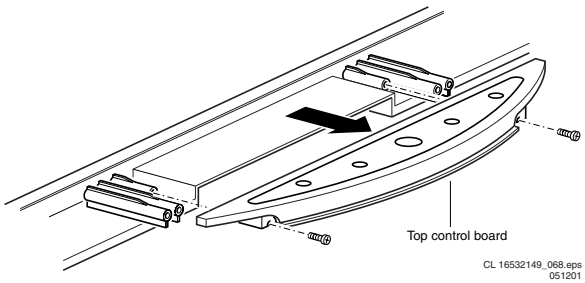


Figure 4-8 Top control assembly

1. Release both screws (about 5 full turns).
2. Pull the complete assembly back and upwards (the assembly hinges in the cabinet front).
3. Flip the assembly, and you can access the board by (carefully) releasing the four clamps.

4.4.2 Side-I/O Assembly and Panel

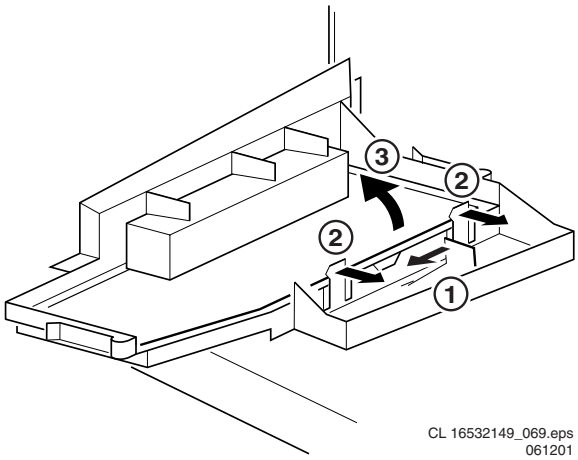


Figure 4-9 Side I/O assembly

1. Release the snap hook [1] with your finger.
2. At the same time, pull the assembly backward [2].
3. Release the two clamps on the right side of the bracket (the board hinges at the left side).
4. Remove the board from the bracket.

4.4.3 AC Power Switch Assembly/Panel

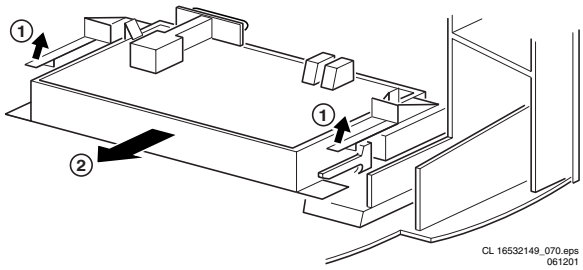


Figure 4-10 AC Power Switch Assembly

1. Release the two clamps by pushing them upward [1]. At the same time, pull the complete assembly backward [2].
   Note: Be aware that the degaussing coil may hamper this.
2. Release the two clamps on the two sides of the bracket (the board hinges at the connector side).
3. Remove the board from the bracket.
4. If the light guide (located in the cabinet, in front of the LEDs) is defective, you can replace it by pushing it forward at the left side (it hinges at the right side, seen from the rear).

4.4.4 DAF Assembly/Panel

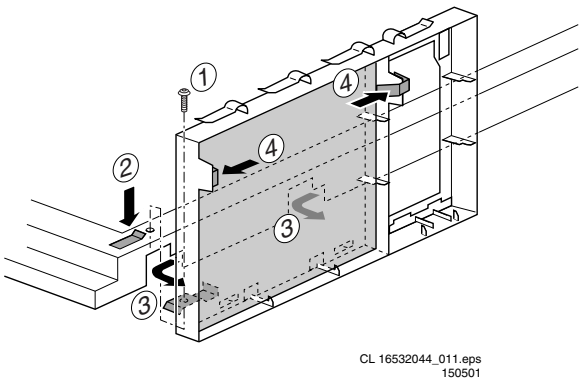


Figure 4-11 DAF module

1. Remove the screw [1] (if present).
2. Push the clamp [2] down, and, at the same time, pull the complete bracket away from the CRT [3]. The module is now free from the LSP bracket.
3. Release the clamps [4], in order to remove the board from its bracket.

4.4.5 Auto-SCAVEM Assembly/Panel

This panel is placed on the left side of the SSB (See figure "Service Position 2"). Because most of its components are located on the bottom side, you must lift the panel from its bracket before you can perform measurements.

1. Release the two clamps at the top.
2. Lift the panel from the bracket (it hinges at the bottom).

To remove the bracket:

1. First, remove the panel from the bracket, as described above.
2. Remove the two screws at the bottom.
3. Lift the Auto-Scavem bracket slightly up, and at the same time bend the top slightly away from the tuner.
4. Push the bracket in the direction of the CRT, and lift it out of the LSP-bracket.

4.4.6 Double Window Assembly/Panel

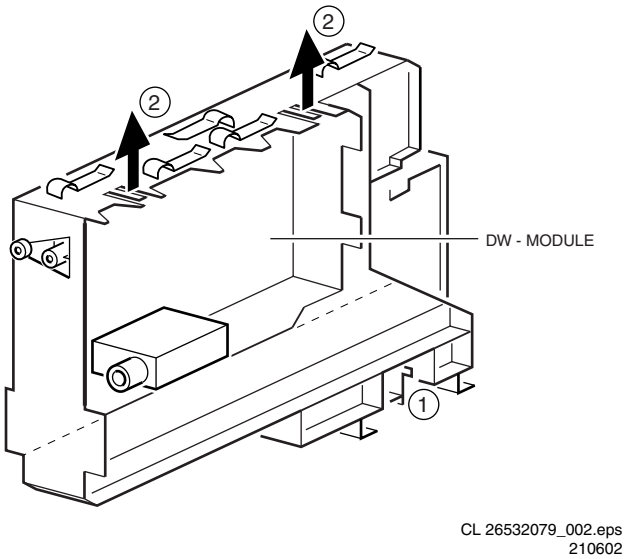


Figure 4-12 Double Window module

This panel is placed in a bracket that is located on the left side of the tuner.
To remove the bracket:

1. Pull the release handle [1] backwards. This will lift the release catch, and the bracket can be pulled out backwards.
2. Release the two securing clamps [2] and lift the board out of the bracket.
3. Both sides of the panel are now easy accessible.

4.4.7 Small Signal Board (SSB)

See section 4.3.4 "Small Signal Board (SSB)" above.

4.4.8 Large Signal Panel (LSP)

1. Remove the SSB (see paragraph "Small Signal Board (SSB)" above).
2. Remove the Auto-Scavem assembly (see paragraph "Auto Scavem Assembly/Panel" above).
3. Disconnect the necessary cables.
4. Release the clamps on the left of the LSP-bracket (the board hinges at the right side).
5. Remove the board from the bracket.

4.5 Set Reassembly

To reassemble the set, perform all disassembly processes in reverse order.

Before replacing the back cover:

- Be sure the AC power cord is mounted correctly in its guiding brackets.
- Be sure all wires/cables are returned to their original positions. This is very important due to the large "hot" area of the set

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points
5.2 Service Modes
5.3 Problems and Solving Tips (related to CSM)
5.4 ComPair
5.5 Error Codes
5.6 The Blinking LED Procedure
5.7 Protections
5.8 Repair tips

5.1 Test Points

The EM5 chassis is equipped with test points printed on the circuit board assemblies. They refer to the schematic diagram letters. The numbering is in a logical sequence for diagnostics. Always start diagnosing (within a functional block), in the sequence of the relevant test points for that block.

Perform measurements under the following conditions:
- Set in Service Default Mode.
- Video: color bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between a Philips Customer Care Centre (P3C) and a customer.

There is also the option of using ComPair, a hardware interface between a computer (see requirements below) and the TV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version readout, and software upgrading.
Minimum requirements: a Pentium processor, Windows 95/ 98, and a CD-ROM drive (see also paragraph "ComPair").

Note: This chassis is equipped with a LED configuration with separate blue and red LEDs. This is different from the bicoloured version we know from EM5E. The blue LED is controlled by software (via ON_OFF_LED). The red LED will light in anti-phase to the blue one, but with a time delay. This means that if the blue LED is blinking fast, the red LED will stay off. But after the blue LED is "OFF" long enough, the red LED will go "ON".
So take care: In certain service modes (e.g. blinking LED, stepwise start-up, etc.) you must observe the blue LED and ignore the red LED.

5.2.1 Service Default Mode (SDM)

Purpose
- To create a pre-defined setting, to get the same measurement results as given in this manual.
- To override SW protections.
- To start the blinking LED procedure.

Specifications
- Tuning frequency: 475.25 MHz for PAL/SECAM. Tuning frequency: 61.25 MHz for NTSC.
- Colour system: PAL B/G or NTSC.
- All picture settings at 50 % (brightness, colour, contrast).
- All sound settings at 50 %, except volume at 25 %.
- All service-unfriendly modes (if present) are disabled, like:
  - (Sleep) timer.
  - Child/parental lock.
  - Blue mute.
  - Automatic volume limiter (AVL).
  - Auto switch-off (when no video signal was received for 10 minutes).
  - Skip/blank of non-favourite pre-sets.
  - Smart modes.
  - Auto store of personal presets.
  - Auto user menu time-out.

How to enter SDM
- Use one of the following methods:
- Use the standard RC-transmitter and key in the code **"062596"**, directly followed by the "MENU" button. **Note:** It is possible that, together with the SDM, the main menu will appear. To switch it off, push the "MENU" button again.
- When you shorten for a moment the two solder pads on the 'external part' of the SSB print, with the indication "SDM". Activation can be performed in all modes, except when the set has a problem with the main-processor. **Caution:** If the SDM is entered via the pins, all the software-controlled protections are de-activated.
- Use the "DEFAULT" button in the DST-emulation feature of ComPair.
- Use the "DEFAULT" button on the Dealer Service Tool (RC7150).

After entering this mode, "SDM" will appear in the upper right corner of the screen.

How to navigate
When you press the "MENU" button on the RC transmitter, the set will toggle between the SDM and the normal user menu (with the SDM mode still active in the background).

How to exit SDM
Use one of the following methods:
- Switch the set to STANDBY via the RC-transmitter.
- Press the "EXIT" button in the DST-emulation feature of ComPair.
- Via a standard customer RC-transmitter: key in "00"-sequence.

5.2.2 Service Alignment Mode (SAM)

Purpose
- To perform (software) alignments.
- To change option settings.
- To easily identify the used software version.
- To view operation hours.
- To display (or clear) the error code buffer.

Specifications
- Operation hours counter.
- Software version.
- Option settings.
- Error buffer reading and erasing.
- Software alignments.

How to enter SAM
Use one of the following methods:
- Via a standard RC transmitter: key in the code **"062596"** directly followed by the "OSD [i+]" button. After activating SAM with this method a service warning will appear on the screen, you can continue by pressing any digit key on the RC.
- Short for a moment the two solder pads on the 'external part' of the SSB print, with the indication SAM. Depending on the software version it is possible that the service warning will appear, you can continue by pressing any digit key on the RC.

- Use the DST-emulation feature of ComPair.
- Press the ALIGN button on the DST while the set is in the normal operation

After entering this mode, "SAM" will appear in the upper right corner of the screen.

Contents of SAM:

- **OPERATION HOURS.** Displays the accumulated total of operation hours (not the standby hours).
- **HARDWARE INFO**
  - **ROM VERSION.** Displays the date of the software and the software version of the ROM (example: EM53AP_1.0_01234 = AAAABB-X.Y_NNNNN).
    - **AAAA**= the chassis name.
    - **BB**= the region: EU= Europe, AP= Asia Pacific PAL/Multi, AN= Asia Pacific NTSC, US= USA, LT= LATAM.
    - **X.Y**= the software version, where X is the main version number (different numbers are not compatible with one another) and Y is the sub version number (a higher number is always compatible with a lower number).
    - **NNNNN**= last five digits of 12nc code software.
  - **FBX VERSION.** The 12NC-number of the build in Feature Box software.
- **ERRORS** (followed by maximal 10 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph "Error Codes").
- **DEFECTIVE MODULE.** Here the module that generates the error is displayed. If there are multiple errors in the buffer, which are not all generated by a single module, there is probably another defect. It will then display the message "UNKNOWN" here.
- **RESET ERROR BUFFER.** When you press the "OK" button, the error buffer is reset.
- **ALIGNMENTS.** This will activate the "ALIGNMENTS" sub-menu.
- **DEALER OPTIONS.** Extra features for the dealers.
- **SERVICE OPTIONS.** Extra features for Service.
- **INITIALISE NVM.** When an NVM was corrupted (or replaced) in the former EM3 chassis, the microprocessor replaces the content with default data (to assure that the set can operate). However, all pre-sets and alignment values are gone now, and option numbers are not correct. Therefore, this was a very drastic way. In this chassis, the procedure is implemented in another way: The moment the processor recognises a corrupted NVM, the "INITIALISE NVM" line will be highlighted. Now, you can do two things (dependent of the service instructions at that moment):
  - Save the content of the NVM via ComPair for development analysis, before initialising. This will give the Philips Service department an extra possibility for diagnosis (e.g. when Development asks for this).
  - Initialise the NVM (same as in the past, however now it happens conscious).
- **STORE.** All options and alignments are stored when pressing the "OK"-button
- **FUNCTIONAL TEST.** All devices are tested via the "OK" button. Eventual errors are displayed in the error buffer. The error buffer is not erased, the content returns when this test is terminated.
- **DAILY MENUS.** With the "OK" button, you can go to the normal user menu. SAM is still active in the background. With the "MENU" button, you return from the user menu to SAM menu. This feature can be helpful to quickly change some settings in the user menu.
- **SW MAINTENANCE**
  - **UPGRADE.** Not applicable for this chassis
  - **EVENTS.** Not useful for service purposes. In case of specific software problems, the development department can ask for this info.
  - **BDM INFO.** Broadcast Debug Menu info. The purpose of this menu is to debug the broadcast, NOT the TV.

The menu gives an overview of what is received on the current preset. Following items are displayed:

```
Presetnr:          --       UTC:            --:--:--
Presetname:        -----    LTO:            --:--:--
                            Time:           --:--:--
CNI NVM:           ----     Date:           --/--/----
CNI F1:            ----
CNI F2:            ----     Time TXT:       --:--:--
CNI VPS:           ----     Time 8/30 F1:   --:--:--
Morning Prog:      ---      Date 8/30 F1:   --/--/----
Name 8/30 F1:      -----    LTO 8/30 F1:    --:--:--
Name 8/30 F2:      -----
Name TXT:          -----    WSS G1:         ----
Signal Strength:---         WSS G2:         ----
                            WSS G3:         ---
EPG Service:       ---      WSS G4:         ---
```

CL 36532017_055.eps 240403

Figure 5-1 Broadcast debug menu overview.

Table 5-1 Broadcast debug menu explanation

Item	Source	Description
Presetnr	Set	Presetnumber of the current selected preset.
Presetname	Set	Presetname of the current selected preset.
CNI NVM	Broadcaster	CNI number stored in NVM for the current preset.
CNI F1	Broadcaster	CNI number from transmitted Packet 8/30 Format 1.
CNI F2	Broadcaster	CNI number from transmitted Packet 8/30 Format 2.
CNI VPS	Broadcaster	CNI number from transmitted VPS line.
Morning Prog	Broadcaster	"ARD" or "ZDF" according to dedicated bit in 8/30 Format 1.
Name 8/30 F1	Broadcaster	Name extracted from status message of 8/30 Format 1.
Name 8/30 F2	Broadcaster	Name extracted from status message of 8/30 Format 2.
Name TXT	Broadcaster	Name extracted from TXT header.
Signal Strength	FBX	Noise figure measured for selected preset.
EPG Service	Set	EPG Service stored in NVM for current preset displayed as "TXT", "MCP", "SCP", "OCP".
UTC	Set	UTC (Universal Time Code formerly known as Greenwich Mean Time) used in the set.
LTO	Set	LTO (Local Time Offset) used in the set. Used by EPG for all Nextview displays. (= Time TXT header - Time 8/30 F1)
Time	Set	Current time running in the set. Was extracted at startup, then maintained by software.
Date	Set	Current date running in the set. Was extracted at startup, then maintained by software.
Time TXT	Broadcaster	TXT header time from the selected preset.
Time 8/30 F1	Broadcaster	UTC time from 8/30 Format 1.
Date 8/30 F1	Broadcaster	Date from 8/30 Format 1.
LTO 8/30 F1	Broadcaster	LTO from 8/30 Format 1.
WSS G1	Broadcaster	WSS Group 1 (Aspect Ratio) bits 0 1 2 3
WSS G2	Broadcaster	WSS Group 2 (Enhanced Services) bits 4 5 6 7
WSS G3	Broadcaster	WSS Group 3 (Subtitles) bits 8 9 10
WSS G4	Broadcaster	WSS Group 4 (Reserved) bits 11 12 13

How to navigate

- In SAM, you can select the menu items with the "CURSOR UP/DOWN" key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the "CURSOR UP/DOWN" key to display the next/previous menu items.
- With the "CURSOR LEFT/RIGHT" keys, it is possible to:
  - (De) activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.

How to exit SAM

Use one of the following methods:

- Press the "MENU" button on the RC-transmitter, or
- Switch the set to STANDBY via the RC-transmitter, or
- Press the "EXIT" button on the DST.

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer. The service technician can than ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.
The CSM is a read only mode; therefore, modifications in this mode are not possible.

How to enter CSM

Use one of the following methods:

- Press the "MUTE" button on the RC-transmitter simultaneously with the "MENU" button on the TV (top control) for at least 4 seconds.
- Key in the code "123654" via the standard RC transmitter.

Note: Activation of the CSM is only possible if there is no (user) menu on the screen!

How to navigate

By means of the "CURSOR-DOWN/UP" knob on the RC-transmitter, you can navigate through the five menus.

Contents of CSM

Customer Service Menu 1

- **SOFTWARE VERSION (example: EM53AP_1.0_01234).** Displays the build in software version. In case of field problems related to software, software flash-RAM pos.7006 must be changed by a new one. Do this via soldering. You will find details of the software versions in the chapter "Software Survey" of the "Product Survey - Colour Television" publication. This publication is generated four times a year.
- **FEATURE BOX.** The 12NC-number of the build in Feature Box software
- **SET TYPE.** This information is very helpful for a helpdesk/ workshop as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of the TV-set.
- **CODE 1.** Gives the latest 5 errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted. The last occurred error is displayed on the leftmost position. Each error code is displayed as a 3-digit number. When less than 10 errors occur, the rest of the buffer is empty (000). See also paragraph "Error Codes" for a description.
- **CODE 2.** Gives the first 5 errors of the error buffer. See also paragraph Error Codes for a description.
- **VOLUME.** Gives the last status of the volume as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Volume values can be changed via the volume key on the RC-transmitter.
- **BRIGHTNESS.** Gives the last status of the brightness as set by the customer. The value can vary from 0 (brightness is minimum) to 100 (brightness is maximum). Brightness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "BRIGHTNESS".
- **CONTRAST.** Gives the last status of the contrast as set by the customer. The value can vary from 0 (contrast is minimum) to 100 (contrast is maximum). Contrast values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "CONTRAST".
- **COLOUR.** Gives the last status of the colour saturation, as set by the customer. The value can vary from 0 (colour is minimum) to 100 (colour is maximum). Colour values can be changed via "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "COLOUR".
- **HUE.** Only relevant for NTSC-signals (e.g. some NTSC-DVD-discs).

Customer Service Menu 2

- **SHARPNESS.** Gives the sharpness value. The value can vary from 0 (sharpness is minimum) to 7 (sharpness is maximum). In case of bad antenna signals, a too high value of the sharpness can result in a noisy picture. Sharpness values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "PICTURE" and "SHARPNESS".
- **HEADPHONE VOLUME.** Gives the last status of the headphone volume, as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). Headphone volume values can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys on the RC-transmitter after pressing the "MENU" button and selecting "SOUND" and "HEADPHONE VOLUME".
- **SURROUND MODE.** Indicates the by the customer selected surround mode (or automatically chosen mode). In case the set is a Non-Dolby set, there will be displayed "0". If it is a Dolby-set then is displayed: "STEREO", "3 STEREO", "HALL", "3DSURROUND", "DOLBY PRO LOGIC" or "DOLBY DIGITAL". These settings can be influenced after pressing the "MENU" button and selecting "SOUND" and SURROUND MODE". It can also have been selected automatically by signalling bits (internal software).
- **TUNER FREQUENCY.** Indicates the frequency the selected transmitter is tuned to. The tuner frequency can be changed via the "CURSOR LEFT" and "CURSOR RIGHT" keys for fine tune after opening the installation menu and selecting "INSTALL" and "MANUAL INSTALL".
- **DIGITAL OPTION.** Gives the selected digital mode, "100 HZ", "DIGITAL SCAN", "NATURAL MOTION", "DOUBLE LINES", or "PIXEL PLUS". Change via "MENU", "PICTURE", "DIGITAL OPTIONS".
- **CENTRE TRIM.** Indicates the difference between main volume and volume of centre speaker. Change via: "MENU", "SETUP", "SPEAKERS", and "CENTRE VOLUME" (not available when "Surround Mode" is set to "STEREO" or "HALL"). The value can vary from "-10" to "+10"
- **TV SYSTEM.** Gives information about the video system of the selected transmitter.
  - **BG:** PAL BG signal received.
  - **DK:** PAL DK signal received.
  - **I:** PAL I signal received.
  - **L/La:** SECAM L/La signals received.
  - **M:** NTSC M signal received with video carrier on 38.9 MHz.

Customer Service Menu 3

- **BALANCE.** Indicates the balance settings, between "-50" and "+50". Change via "MENU", "SOUND", and "BALANCE". Not applicable for Dolby Pro Logic sets.
- **CENTRE MODE.** Indicates if centre mode is set "ON" or "OFF". When centre mode is on, all TV speakers are used as one centre speaker. Change Centre mode via "MENU", "SETUP", "SPEAKERS", and "CENTRE MODE".
- **DNR.** Gives the selected DNR setting (Dynamic Noise Reduction), "OFF", "MINIMUM", "MEDIUM", or "MAXIMUM". Change via "MENU", "PICTURE", "DNR"
- **NOISE FIGURE.** Gives the noise ratio for the selected transmitter. This value can vary from 0 (good signal) to 127

(average signal) and to 255 (bad signal). For some software versions, the noise figure will only be valid when "Active Control" is set to "medium" or "maximum".
- **SOURCE.** Indicates which source is used and the video/ audio signal quality of the selected source. (Example: Tuner, Video/NICAM) Source: "TUNER", "EXT1", "EXT2", "EXT3", "EXT4", "SIDE", "AV1", "AV2", "AV3" or "AV4". Video signal quality: "VIDEO", "S-VIDEO", "RGB 1FH", "YPBPR 1FH 480P", "YPBPR 1FH 576P", "YPBPR 1FH 1080I", "YPBPR 2FH 480P", "YPBPR 2FH 576P", "YPBPR 2FH 1080I", "RGB 2FH 480P", "RGB 2FH 576P" or "RGB 2FH 1080I". Audio signal quality: "STEREO", "SPDIF 1", "SPDIF 2" or "SPDIF".
- **AUDIO SYSTEM.** Gives information about the audio system of the selected transmitter: "ANALOGUE MONO", "ANALOGUE STEREO", "PCM 2/0", "DD 1/0", "DD 2/0 LtRt", "DD 2/0 L0R0", "DD 2/1", "DD 2/2", "DD 3/0", "DD 3/ 1", "DD 3/2", "DD 1+1", "MPEG 1/0", "MPEG 2/0", "MPEG 2/0 LtRt", "MPEG 2/1", "MPEG 2/2", "MPEG 3/0", "MPEG 3/1", "MPEG 3/2", "MPEG 1+1" or "MPEG 2+2".
- **TUNED BIT.** Gives information about the tuning method of the stored pre-set. If a channel is found via "automatic installation", you will see the value "NO". When you change this (automatically found) frequency via "fine tune" adjustment (installation menu - manual installation), the displayed value will change to "YES". Therefore, when you see the value "YES" in this line, it is an indication that the received channel is a non-standard signal (e.g. of a VCR).
- **SURROUND SPEAKERS.** Indicates if the surround speakers are present, "OFF" or "ON". Change via "MENU", "SETUP", "SPEAKERS", and "SURROUND SPEAKERS".
- **ON TIMER.** Indicates if the "On Timer" is set "ON" or "OFF" and if the timer is "ON" also displays start time, start day and program number. Change via "MENU", "TV", "FEATURES", and "ON TIMER".
- **PRESET LOCK.** Indicates if the selected preset has a child lock: "LOCKED" or "UNLOCKED". Change via "MENU", "TV", "FEATURES", "CHILD LOCK", and "CUSTOM LOCK".

Customer Service Menu 4
- **CHILD LOCK.** Indicates the last status of the general child lock: "UNLOCK", "LOCK", or "CUSTOM LOCK". Change via "MENU", "TV", "FEATURES", "CHILD LOCK", and "LOCK".
- **AGE LOCK.** Indicates the last status of the EPG rating for child lock: "OFF", "4 YEARS", "6 YEARS", "8 YEARS", "10 YEARS", "12 YEARS", "14 YEARS" or "16 YEARS". This is only displayed if child lock is set to "CUSTOM LOCK"
- **LOCK AFTER.** Indicates at what time the child lock is set: "OFF" or e.g. "18:45" (lock time). This is only displayed if child lock is set to "CUSTOM LOCK"
- **CATEGORY LOCK.** Indicates the last status of the EPG theme childlock: "MOVIES", "NEWS", "SHOWS", "SPORTS", "CHILDREN", "MUSIC", "CULTURE", or "SERIES". This is only displayed if child lock is set to "CUSTOM LOCK". It is possible that more than one value is shown.
- **PROGRAM CATEGORY.** Indicates the theme of the selected transmitter: "MOVIES", "NEWS", "SHOWS", "SPORTS", "CHILDREN", "MUSIC", "CULTURE", or "SERIES".
- **TV RATINGS LOCK.** Only applicable for US.
- **MOVIE RATINGS LOCK.** Only applicable for US.
- **V-CHIP TV STATUS.** Only applicable for US.

Customer Service Menu 5
- **V-CHIP MOVIE STATUS.** Only applicable for US.
- **OPTIONS 1.** Gives the option codes of option group 1 as set in SAM (Service Alignment Mode).
- **OPTIONS 2.** Gives the option codes of option group 2 as set in SAM (Service Alignment Mode).
- **AVL.** Indicates the last status of AVL (Automatic Volume Level): "ON" or "OFF". Change via "MENU", "TV", "SOUND", "AVL"
- **DELTA VOLUME.** Indicates the last status of the delta volume for the selected preset as set by the customer: from "-12" to "+12". Change via "MENU", "TV", "SOUND", "DELTA VOLUME".
- **FRONT SPKR DIST.** Indicates the last status of the distance to the front speakers as set by the customer: "1m", "2m", or "3m",.... Change via "MENU", "SETUP", "SPEAKERS", "TO FRONT".
- **SURR. SPKR DIST.** Indicates the last status of the distance to the surround speakers as set by the customer: "1m", "2m", or "3m",. Change via "MENU", "SETUP", "SPEAKERS", "TO SURROUND".

How to exit CSM

Use one of the following methods:
- After you press a key on the RC-transmitter (with exception of the "CHANNEL", "VOLUME" and digit (0-9) keys), or
- After you switch the TV-set "OFF" with the mains switch.

5.3 Problems and Solving Tips (related to CSM)

Note: Below described problems are all related to the TV settings. The procedures to change the value (or status) of the different settings are described above. New value(s) are automatically stored.

5.3.1 Picture Problems

Snowy/noisy picture
1. Check line 24 "Noise Figure". In case the value is 127 or higher, and the value is also high on other programs, check the aerial cable/aerial system. For some software versions, the noise figure will only be valid when "Active Control" is set to "medium" or "maximum".
2. Check lines 11 "Sharpness" and 24 "Noise Figure". In case the value of line 11 is 3 or 4 and the value of line 24 is high (127 or higher), decrease the "Sharpness" value.

Picture too dark
1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case the picture improves, increase the "Brightness" or the "Contrast" value. The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.
2. Check line 7 "Brightness" and 8 "Contrast". If the value of line 7 is low (< 10) or the value of line 8 is low (< 10), increase the "Brightness" or the "Contrast" value.

Picture too bright
1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case the picture improves, decrease the "Brightness" or the "Contrast" value. The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.
2. Check lines 7 "Brightness" and 8 "Contrast". If the value of line 7 is high (> 40) or the value of line 8 is high (> 50). Decrease the "Brightness" value or increase the "Contrast" value.

White line around picture elements and text

1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case the picture improves, decrease the "Sharpness" value. The new value is automatically stored (in "personal" pre-set) for all TV channels.
2. Check line 11 "Sharpness". Decrease the "Sharpness" value. The new value is automatically stored for all TV channels.

No picture

Check line 27 "Tuned bit". In case the value is "No", install the required program again. Open the installation menu and perform manual installation.

Blue picture

No proper signal is received. Check the aerial cable/aerial system.

Blue picture and/or unstable picture

A scrambled or decoded signal is received.

Black and white picture

Check line 9 "Colour". In case the value is low (< 10), increase the "Colour" value. The new value is automatically stored for all TV channels.

Menu text not sharp enough

1. Press "MENU", "TV", "PICTURE", "SMART PICTURE". In case picture improves, decrease the contrast value. The new value(s) are automatically stored for all TV channels.
2. Check line 8 "Contrast". The value of line 8 is high (> 50). Decrease the contrast value.

5.3.2 Sound Problems

No sound from left and right speaker

Check line 6 "Volume". The value is low. Increase the value of "Volume". The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.

Sound too loud for left and right speaker

Check line 6 "Volume". The value is high. Decrease the value of " Volume". The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.

5.4 ComPair

5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

- ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
- ComPair allows very detailed diagnostics (on I^2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I^2C commands yourself because ComPair takes care of this.
- ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based faultfinding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial or RS232 cable.
For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector.

The ComPair faultfinding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- **Automatic** (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I^2C level. ComPair can access the I^2C bus of the television. ComPair can send and receive I^2C commands to the micro controller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I^2C busses of the TV-set.
- **Manually** (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extends. When this is not the case, ComPair will guide you through the faultfinding tree by asking you questions (e.g. Does the screen give a picture? Click on the correct answer: YES / NO) and showing you examples (e.g. Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the faultfinding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Beside fault finding, ComPair provides some **additional features** like:

- Up- or downloading of pre-sets.
- Managing of pre-set lists.
- Emulation of the Dealer Service Tool (DST).
- If both ComPair and SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink. **Example:** *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the Mono-carrier.*
  - Click on the "Panel" hyperlink to automatically show the PWB with a highlighted capacitor C2568.
  - Click on the "Schematic" hyperlink to automatically show the position of the highlighted capacitor.

5.4.3 Stepwise Start-up

Under normal circumstances, a fault in the power supply, or an error during start-up, will switch the television to protection mode. ComPair can take over the initialisation of the television. In this way, it is possible to distinguish which part of the start-up routine (hence which circuitry) is causing the problem. Take notice that the transition between two steps can take some time, so give the set some time to reach a stable state. During the transition time the LED can blink strangely.

Stepwise start- up explanation

This is realised via ComPair and is very helpful when a protection is activated (see also chapter "Protections").

Table 5-2 Stepwise start-up table

State	Description mode	Display LED	Enabled protection
0	Low power standby: 5V2/3V3 present, uP in standby-mode	On	None
1	High power Standby: TV-set in standby-mode	Wait 1s, flash 1 x	None
2	Main Power On: HOP in standby, 5V/8V present, I²C protections on, SSB is powered by standby-supply (5V/8V). Degaussing (12 s) has been activated, MSP is reset.	Wait 1s, flash 2 x	4 & 5
3	Initialized (Semi standby): most IC's are initialized, HOP still in standby	Wait 1s, flash 3 x	Plus 1, 6 & 18
4	HOP: HOP fully powered and working, EHT is present, rest of IC's initialized, black current stabilisation is off, picture is still blanked	Wait 1s, flash 4 x	Plus 2 & 16
5	On: TV-set operates, black current stabilisation is on, picture is unblanked.	Wait 1s, flash 5 x	

Note (*):
- When the set is in stepwise mode and, due to stepping-up, a protection is activated, the set will really go into protection (blinking LED). The set will not leave the stepwise-mode however. If state X is the state where the set went to protection, stepwise start-up will return to state X-1. At state (X-1) diagnostic measurements can be performed. Also, in the short time the set is in state X but not yet in protection, you can also do some measurements.

5.4.4 How To Connect

This is described in the chassis fault finding database in ComPair .

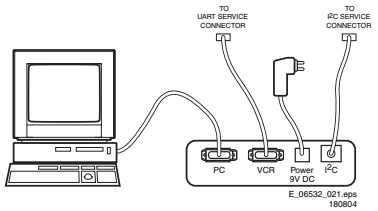


Figure 5-2 ComPair interface connection

5.4.5 How To Order

ComPair order codes (EU/AP/LATAM):
- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excluding transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070 (year 2002, 3122 785 60110 (year 2003).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003), 3122 785 60130 (year 2004).
- ComPair interface cable: 3122 785 90004.
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer (non-UK): 4822 727 21632.
- Transformer UK: 4822 727 21633.
- Additional ComPair interface cable: 3139 131 03791.

Note: If you encounter any problems, contact your local support desk.

5.5 Error Codes

5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.
When an error has occurred, the error is added to the list of errors, provided the list is not full or the error is a protection error.
When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.
To prevent that an occasional error stays in the list forever, the error is removed from the list after 50+ operation hours.
When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

5.5.2 How to read the Error Buffer

Use one of the following methods:
- On screen via the SAM (only if you have a picture). Examples:
  - **0 0 0 0 0:** No errors detected
  - **6 0 0 0 0:** Error code 6 is the last and only detected error
  - **9 6 0 0 0:** Error code 6 was first detected and error code 9 is the last detected error
- Via the blinking LED procedure (when you have no picture). See next paragraph.
- Via ComPair.

5.5.3 How to clear the Error Buffer

Use one of the following methods:
- By activation of the "RESET ERROR BUFFER" command in the SAM menu.
- With a normal RC, key in sequence "MUTE" followed by **"062599"** and "OK".
- When you transmit the commands "DIAGNOSE" - "99" - "OK" with ComPair (or with a DST).
- If the content of the error buffer has not changed for 50+ hours, it resets automatically.

5.5.4 Error Codes

In case of non-intermittent faults, clear the error buffer before you begin the repair. This to ensure that old error codes are no longer present. Before clearing the buffer, write down the content, as this history can give you significant information.

If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).

There are various errors:
- I²C device errors.
- I²C bus errors.
- Protection errors.
- Errors not related to an I²C device, but of importance:
  - **BLACK CURRENT LOOP (ERROR 28):** detection of a continuous fail of the black current stabilisation loop of the HOP.
  - **FEM (ERROR 26):** at start-up, after initialisation of the PICNIC, the presence of the FALCONIC can be checked.
  - **EAGLE (ERROR 27):** at start-up, after initialisation of the PICNIC, the presence of the Eagle can be checked.

Table 5-3 Error table.

Error	Device	Description	Def. item	Defect. module indication	Diagram
1	M24C32	NVM, spontaneous blinking error 1	7011	Control	B5a
2	Hfail Protection	Horizontal Flyback protection	/	Horizontal Flyback	/
3	SAA4978	PICNIC	7713	Feature Box	B3a
4	Supply 5V	5V protection	/	+5V Supply	B5a
5	Supply 8V	8V protection	/	+8V Supply	B5a
6	Slow I^2C bus blocked	Spontaneous blinking error 6	/	Slow I^2C Blocked	/
7	TDA9330	HOP High-end Output Processor	7301	Video Controller	B4
8	TDA932x	HIP High-end Input Processor	7323	Chroma IF IO	B2
12	TDA9178	Topic	7302	Video Controller	B4
13	UV1318/...	Tuner protection	1T01	Tuner	A8
14	MSPxxxx	ITT sound processor	7651	Audio module	B6a
16	FBX	Feature Box Protection	/	+3V (Fbx) Supply	B3
18	Fast I^2C bus blocked	Spontaneous blinking error 18	/	Fast I^2C Blocked	/
19	TDA8444	Auto Scavem DAC	7500	Auto Scavem	SC1
26	SAA4998	FEM	7760	+3V (Fbx) Supply	B3b
27	T6TX5EF	Eagle	7720	+3V (Fbx) Supply	B3c
28	Black current loop	Black current loop	/	Video Controller	/
32	M29W400BT	Flash Ram (EPG)	7012	EPG Memory	B5a
35	T6TU5XB	Columbus	7752	Video Controller	B3d

Note:
Error codes 1, 6, or 18 are protection codes and in this case, supplies of some circuits will be switched "OFF". Also, in protection, the LED will blink the number of times equivalent to the most recent error code.

5.6 The Blinking LED Procedure

5.6.1 Introduction

Via this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful for fault finding, when there is no picture.

When the SDM is entered, the front LED will show (blink) the contents of the error-buffer. Error-codes = 10 are shown as follows:
- A long blink of 750 ms (which is an indication of the decimal digit),
- A pause of 1.5 s,
- "n" short blinks (where "n" = 1 - 9),
- When all the error-codes are displayed, the sequence finishes with a LED blink of 3 s,
- The sequence starts again.

Example: Error 12 9 6 0 0.
After activation of the SDM, the red front LED will show:
- 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1.5 s,
- 2 short blinks followed by a pause of 3 s,
- 9 short blinks followed by a pause of 3 s,
- 6 short blinks followed by a pause of 3 s,
- 1 long blink of 3 s to finish the sequence,
- The sequence starts again.

Note: If errors 1, 6 or 18 occur, the LED always gives the last occurred error even if the set is NOT in service mode.

5.6.2 How to Enter

Use one of the following methods:
- Enter the SDM (only via soldering pads marked "SDM" on SSB). The blinking red front LED will show the entire contents of the error buffer (this works in "normal operation" mode and in "protection" mode).
- Transmit the commands "MUTE" - **"062500"** - "OK" with a normal RC. The complete error buffer is shown. Take notice that it takes some seconds before the blinking led LED starts.
- Transmit the commands "MUTE" - **"06250x"** - "OK" with a normal RC (where "x" is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... Take notice that it takes some seconds before the blinking led LED starts.
- "DIAGNOSE X" with the DST (where "x" is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the second last error, etc.... When x = 0 all errors are shown.

5.7 Protections

5.7.1 Introduction

This chassis has only one microprocessor (OTC), which remains active during Standby. This because power of the microprocessor and the attached memory chip set is coming from the 3V3 supply, which is derived from the 5V Standby-circuitry. Therefore, in both Power-on as in Standby mode, the microprocessor is connected to this power supply.

If a fault situation is detected, an error code will be generated and if necessary, the set is put in protection mode. The protection mode is indicated by the blinking of the front LED at a frequency of 3 Hz (or by a coded blinking in special cases). In some error cases however, the microprocessor does not put the set in the protection mode (this is the case with the - hardware - loudspeaker protection of the audio amplifier).

The content of the error buffer can be read via the service menu (SAM), the blinking LED procedure or via DST/ComPair.

To get a quick diagnosis, this chassis has three service-modes implemented:
- The **Customer Service Mode (CSM).**
- The **Service Default Mode (SDM).** Start-up of the set in a predefined way.
- The **Service Alignment Mode (SAM).** In this mode, items of the set can be adjusted via a menu.

You can enter both SDM and SAM modes via the 'service pads' on the SSB, via an RC-transmitter (DST or standard RC), or via ComPair. It is not possible to enter the SAM in "standby"; the TV has to be in "normal operation" mode.

The "Protection Diagram" shows the structure of the protection system. See diagram below.

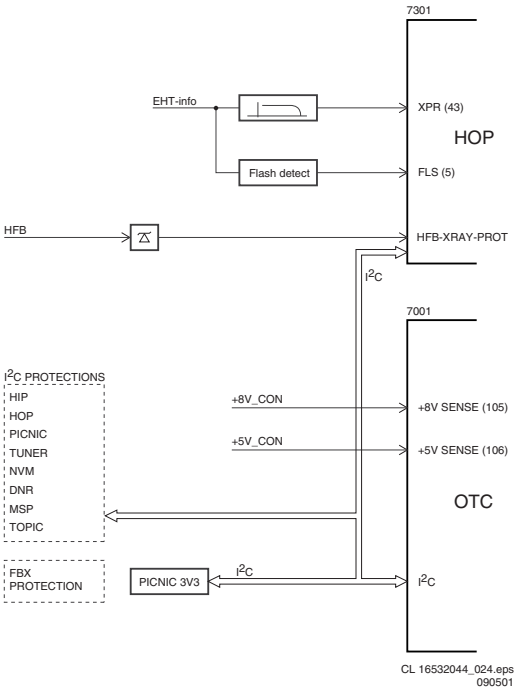


Figure 5-3 Protection diagram

There are several types of protections:
- I^2C related protections.
- OTC related protections (via polling on I/O pins or via algorithms).
- HOP related protections (mainly for deflection items).
- Hardware errors that are not sensed by the OTC (e.g. vertical flyback protection, bridge coil protection, E/W protection, arcing protection).

All protections are explained below.

5.7.2 I2C Related Protections

In normal operation, some registers of the I^2C controlled ICs are refreshed every 200 ms. During this sequence, the I^2C busses and the I^2C ICs are checked.
An I^2C protection will take place if the SDA and SCL lines are short-circuited to ground, or to each other. An I^2C error will also occur, if the power supply of the IC is missing (e.g. FBX_PROT (error 16)).

5.7.3 OTC Related Protections

If a protection is detected at an OTC input, the OTC will start to scan all protection inputs every 200 ms for 5 times. If the protection on one of the inputs is still active after 1 s, the microprocessor will put the set in the protection mode.
Before the scanning is started, a so-called "ESD refresh" is carried out. This is done, because the interrupt on one of the inputs is possibly caused either by a flash or by ESD. As a flash or ESD can influence IC settings, the HIP, MSP, 3D Comb (US only) and wireless module are initialised again, to ensure the normal picture and sound conditions of the set.

8 V and 5 V protection: The microprocessor senses the presence of the 8 V and 5 V (via the "+5V_CON" and "+8V_CON" lines). If one (or both) of these voltages is (are) not present, an error code is stored in the error buffer of the NVM, and the set is put in the protection mode.

5.7.4 HOP Related Protections

Every 200 ms, the status register of the HOP is read by the OTC (via the I^2C bus). If a protection signal is detected on one of the inputs of the HOP, the relevant error bit in the HOP register is set to "high". If this error bit is still "high" after 1 s, the OTC will store the error code in the error buffer of the NVM and, depending on the relevancy of the error bit, the set will either go into the protection mode or not.

The following protections are implemented:
- **HFB (Horizontal Flyback):** If the horizontal flyback is not present, this is detected via the HOP (HFB_X-RAY_PROT). One status bit is set to "high". The error code is stored in the error buffer and the set will go into the protection mode.
- **XPR (X-ray protection):** If the HFB pulses are too low (level detection), the HOP will detect this via the XPR-bit. The error will be logged in the error buffer and the set will go into protection mode.

Note: Both errors will be logged as HFB-failure.

5.7.5 Hardware Related Protections

Due to the architecture ("hot" deflection), some protections cannot be sensed by the microprocessor. Three of these protections will lead to a protection on set level (Standby mode and blinking LED), while another will only lead to a circuit protection.

TV-set Protection
The following fault conditions will lead to a "complete" set protection:
- **BRIDGECOIL protection:** This is sensed via the "EW" signal going to the base of TS7652 (via R3495 and D6499). In a normal situation, the voltage on C2498 (diagram A4) is high and TS7652 is conducting. When bridge coil 5422 (diagram A3) is short circuited, the voltage on C2498 changes to low, which will block TS7652. In this case, also TS7641 will block and the voltage on 2642 will rise until TS7443 is forced in conduction. The "SUP-ENABLE" signal (in normal operating condition -20 V) is shorted now to ground level, which will force the Main Power Supply to Standby mode.
- **ARC protection:** If there are "open" connections (e.g. bad solder joints) in the high-energy deflection circuitry, this can lead to damaging effects (read: fire). For that reason, the E/W current is sensed (via 3479//3480). If this current becomes too high, the "thyristor" circuit (TS7653 and TS7654) is triggered. TS7442 is switched "on" and TS7443 is forced into conduction. . The "SUP-ENABLE" signal is shorted now to ground level, which will force the Main Power Supply to Standby mode.
- **NON_VFB (No vertical Flyback) protection:** If the frame stage generates no pulses, TS7641 will block. TS7443 is now switched "on", which will lead to Standby mode. Therefore, in normal operation condition, TS7641 and TS7652 are conducting, while TS7443 is blocked.

Circuit Protection
The following fault condition will lead to a "partly" set protection:
- **PROT1 (DC) protection:** When a DC-voltage (positive or negative) is sensed on one of the loudspeaker outputs, the protection circuit (TS7704, 7705, 7706 and 7707 in diagram A6) will put the IC7700 in Standby mode (via tri-state input pin 6). For more details, see chapter "Circuit Descriptions".

5.8 Repair tips

5.8.1 Miscellaneous

The relay you hear when you switch the set "on" (from Standby or via the mains switch), is from the degaussing circuitry. It is not used for switching the Power Supply (as done in the MG-chassis).

Take care not to touch the "hot" heatsink while disconnecting the SSB, despite the fact that the mains cord is out of the mains socket. There can still be an annoying rest-voltage on the heatsink for a short while. This, because the discharge resistors 3502 and 3503 (on the LSP between hot and cold part) are not stuffed for Europe. Instead, discharge resistors 3066 and 3057 on the Mains Switch panel are used, but because they are located before the Mains switch, they only discharge when this switch is "on".
Advice: when you remove the SSB, disconnect the Mains cord, but keep the Mains Switch "on".

Do not try to measure on the SSB side, which is facing the 'hot' heatsink. This is dangerous. Most service test points are guided to the 'tuner' side and are indicated by the 'service' printing.
Where the circuitry was too "crowded" for service printing, you can find the correct location on the "test point overviews" in this manual.
A very large part of the LSP is "**hot**", such as:

- The primary part of the Standby Supply.
- The whole Main supply (except for the secondary Audio supply).
- And the complete deflection circuitry (so notice that the deflection coil is hot!).

5.8.2 Start-up Sequence

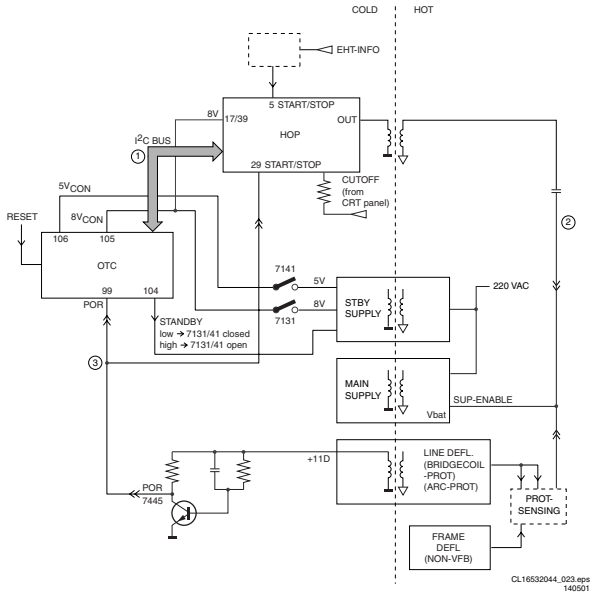


Figure 5-4 Start-up circuitry

The start up sequence differs from other sets (e.g. MG-sets or EM2E-sets, but is same as in EM3E-set):

1. When the set is switched "on", the 5 and 8 V lines ("+5V_CON" and "+8V_CON") of the standby power supply are activated.
2. After the OTC senses them, the P will address the HOP via the I^2C-bus, to start the drive [1].
3. Via the "SUP-ENABLE" signal, the Main Supply is switched "on" and will deliver the V_BAT to the Line deflection stage [2].
4. EHT generation is now started.
5. The OTC will un-blank the picture.
6. When you switch "off" the set, this is done in a controlled way via the POR signal [3].

Note: Standby is not directly achieved via the Standby line of the microprocessor, but indirectly via the HOP circuitry.

5.8.3 ComPair

This chassis does not have an IR transmitting LED (as in MG-sets). Therefore, a "Service" (ComPair) connector is implemented at the rear side of the set, which is directly accessible (as in A10-, EM2E-, EM3E and EM5E-sets). In addition to this, there is also a blinking LED procedure to show the contents of the error buffer.

When you use ComPair, you have the possibility to activate a "stepwise start-up" mode. With this mode, you can initiate the start-up sequence step by step. This also means that in certain steps, some protections are not activated. This is sometimes very convenient during repair.

5.8.4 Protections

Activating SDM via the "service pads" will overrule the processor-controlled protections, but not the hardware protections. This means, that the A/D-input protections (5 and 8 V) and the I^2C "not-acknowledging" info of the feature box (FBX) and of the Tuner are overruled.
Caution: When doing this, the service technician must know what he is doing, as it could lead to damaging the set.

The "ARC"- and/or "BRIDGECOIL" protection are hardly ever triggered, however:

- When you suspect the "ARC" protection, look for bad solder joints and smell. By interrupting resistor 3497, this protection is disabled (special attention needed!).
- When you suspect the "BRIDGECOIL" protection, which can also be due to a too wide picture amplitude, shorten G and S of the E/W MOSFET 7480. This will disable the protection. You will now have minimal horizontal amplitude. Re-align the horizontal amplitude in the SAM menu and remove the G/S short of TS7480.

5.8.5 Main Supply

The simplest way is, to replace the components of the Main Supply with repair kit 3122 785 90310.

More detailed way:

1. Replace FET 7504 and zener 6505.
2. Remove the SSB panel.
3. Short B and E of TS7529, in order to put the Main Supply in "on"-mode (TS7529 is blocking then).
   Caution: To prevent that R3403 and TS7443 will be damaged, **first disable the HW-protection of the deflection circuit.** Therefore short circuit C2642 on the LSP (diagram A4).
4. Attach a load of 500 O to V_BAT capacitor C2515 (the supply can not work without a minimum load).
5. Use a variac, and slowly increase the V_MAINS. Measure over sensing resistors R3514//15, if a nice sawtooth voltage becomes available.
6. Also measure the V_BAT. This may never exceed +141 V. If it does, there is something wrong in the feedback circuitry (e.g. regulator 7506).

Note: Be careful when measuring on the gate of FET TS7504. This circuitry is very high ohmic and can easily be damaged (first connect ground to measuring equipment, than measure the gate).

5.8.6 Standby Supply

The simplest way is to replace the components of the Standby Supply with repair kit 3122 785 90460.

5.8.7 Line Deflection

The simplest way is to replace the components of the Line Deflection circuitry with repair kit 3122 785 90330.

5.8.8 Frame Deflection

Caution: When the Frame Deflection circuitry is suspected, one must be careful. Because there is a DC-voltage on the frame deflection, **the beam current could damage the CRT neck, leading to a defective CRT.**

To prevent this from happening, you must:

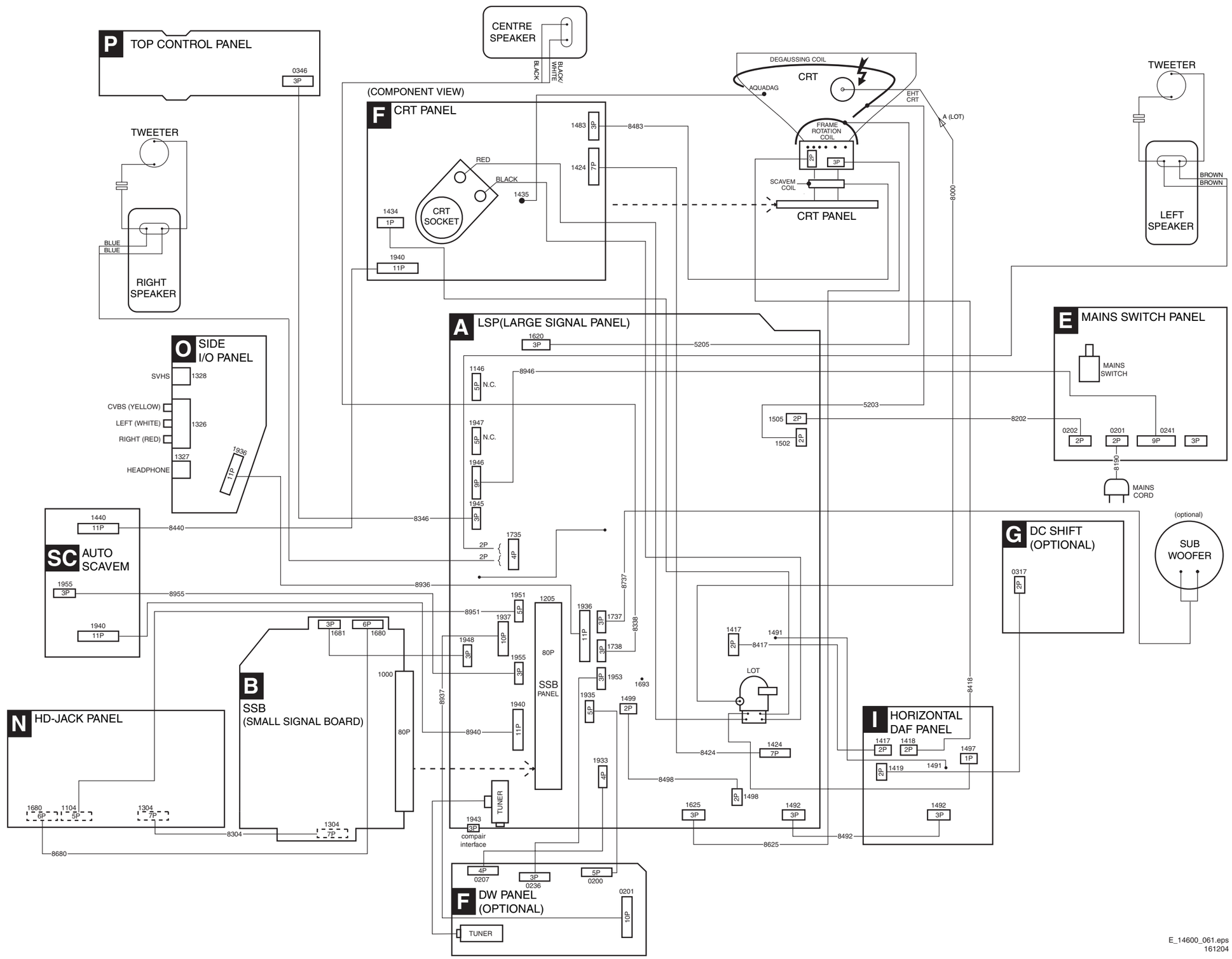
1. Interrupt the resistors 3403 and 3404 on the CRT panel (diagram F1), in order to remove the "filament" voltage from the tube (no beam current, so no chance of destroying the CRT).
2. Interrupt resistor 3403 on the LSP (diagram A4) to disable the "SUP-ENABLE" line.
3. Measure with a multi-meter, or better with a oscilloscope, the functionality of the Frame stage.
4. After you have found the cause, exchange the defective component (e.g. TDA8177), and re-solder the interrupted resistors.

Table 5-4 Repair Tips

Phenomenon	Possible Cause	Repair tip
No picture, no LED.	Standby Supply defective.	Measure circuitry (see diagram A2). Start at test-point A19. When the Mains switch is 'on', this voltage must always be available
No picture, no LED.	Bad connection of SSB in SIMM-connector.	In case of a bad connection, it can happen that there is no picture, and that the Standby LED is not controllable. Re-place the SSB.
No picture, LED blinking at 3 Hz.	Set is in protection due to various causes. For error codes see error-code list.	You have no picture, so: - Read the error buffer via ComPair (error buffer is accessible when set is in protection, compare-file will guide you to this) - Read the blinking LED information via standard remote command <mute>**06250X**<ok> - Or you read the error code sequence via standard remote command <mute>**062500**<ok>. When you have found the error, check the circuitry related to the supply voltage and I^2C-communication or the circuitry that triggers the protection.
No picture, LED blinking with code 6-6-6 or 18-18-18.	No communication on slow I^2C- or fast I^2C-bus.	As processor cannot communicate with one of the 2 busses it the standby-led spontaneously starts blinking 6-6-6... or 18-18-18... If in the error buffer somewhere is an error 6 or 18, these will have the highest priority starting the mentioned blinking. Measure dependent of the error on the I^2C-bus which device is loading the bus. (Use I^2C -overview)
No picture, LED blinking with code 1-1-1.	No communication on NVM- I^2C bus to the uP.	As the uP cannot communicate with the NVM I^2C bus, it spontaneously starts blinking 1-1-1. Note: when there is no access to the NVM, a lot of picture setting can go wrong.
No picture, no sound. Set is making audible squeaking sound	Supply is possibly in hiccup-mode, which is audible via a squeaking supply transformer.	Possible causes: - V_{BAT} is shorted (caused by short circuited line transistor 7421), or - Sound winding is shorted (amplifier is shortening the power supply lines), or - D6514 is shorted (due to a too high V_{BAT}). Remove excessive load, to see what causes the failure, or check feedback circuit. See repair tip 'Main Power Supply' (supply needs a minimal load).
No picture, no sound. Power LED works fine	Supply does not work correctly.	If e.g. V_{BAT} is only about 90 V, it is possible that the regulator IC (7506) is defective.
No RC-reception. LED does not echo RC-commands.	uP circuitry or RC-receiver is defective.	In case the set does react on a local keyboard operation, you must check the RC-receiver circuitry.
Relay (degaussing) is not audible, when set is switched from 'off' or 'standby' to 'on'.	uP is not working correctly.When pin 115 is low, the degaussing must be activated.	Check RESET-circuitry on diagram B5. Check the level on pin 115 when you switch the set 'on'. Signal must be low initially and go to high after approx. 12 s.
Picture is rotated.	Rotation circuitry on diagram A5, or related supply to it, malfunctions.	Measure test points on diagram A5.
Picture is continuously switching 'off' and 'on', showing heavy 'switch' spots (set does not go into protection).	200 V is missing on CRT panel.	Probably a bad connection from LSP connector 1424 to CRT connector 1424 (diagram F), or an interruption of the 200 V supply line (e.g. R3341 on circuit F is interrupted).
Picture is not sharp.	Focus is possibly mis-aligned or SCAVEM-circuitry does not work correctly.	Re-align the 'focus' potmeter on the Line Output Transformer, or check the SCAVEM circuitry on the CRT-panel (diagram F). It is also possible that the DAF circuitry is defective (see diagram I). Check the Vdc values.
Picture is not synchronised.	The sync is derived in the HIP from x-tal 1305 and/or 1308.	Maybe the crystals 1305 and/or 1308 are making a bad contact.
Picture is distorted.	Check video-path in Service Default Mode.	Investigate whether there is an error code present in the error buffer. In case there is one, check the I^2C -bus and/or supply lines (see overview supply lines). Measure and check signal path Tuner-HIP-PICNIC-HOP-RGB amplifier.In case it is a geometry issue, check on diagram A4 opto-coupler 7482, Opamps 7440/7450 and the Frame circuitry alignments or a possible corrupted NVM (7011) on diagram B5.
No menu, no OSD.	Probably a defective uP.	Measure test points B61to B64 on diagram B5.
How to measure if soldering connections of a BGA are OK		For most BGA's the pins/balls are ESD protected via diodes to ground, it is possible to measure these diodes with a multi-meter. Overload means no or bad connection.
How to measure on other IC's		It is advisable to measure both on the pins itself and the solder pads on the PWB. This to find possible solder faults.

6. Block Diagrams, Testpoint Overviews, and Waveforms

Wiring Diagram



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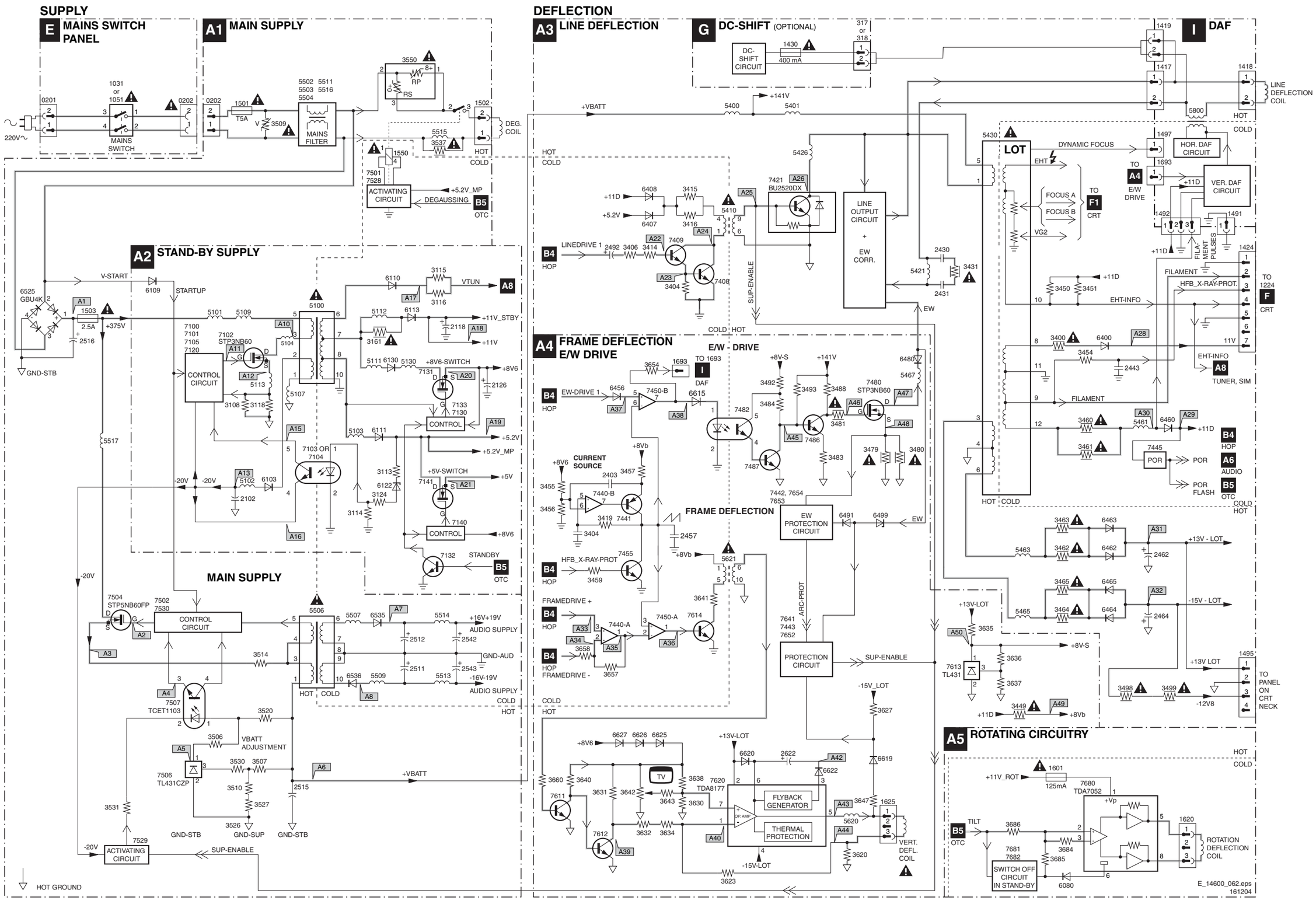
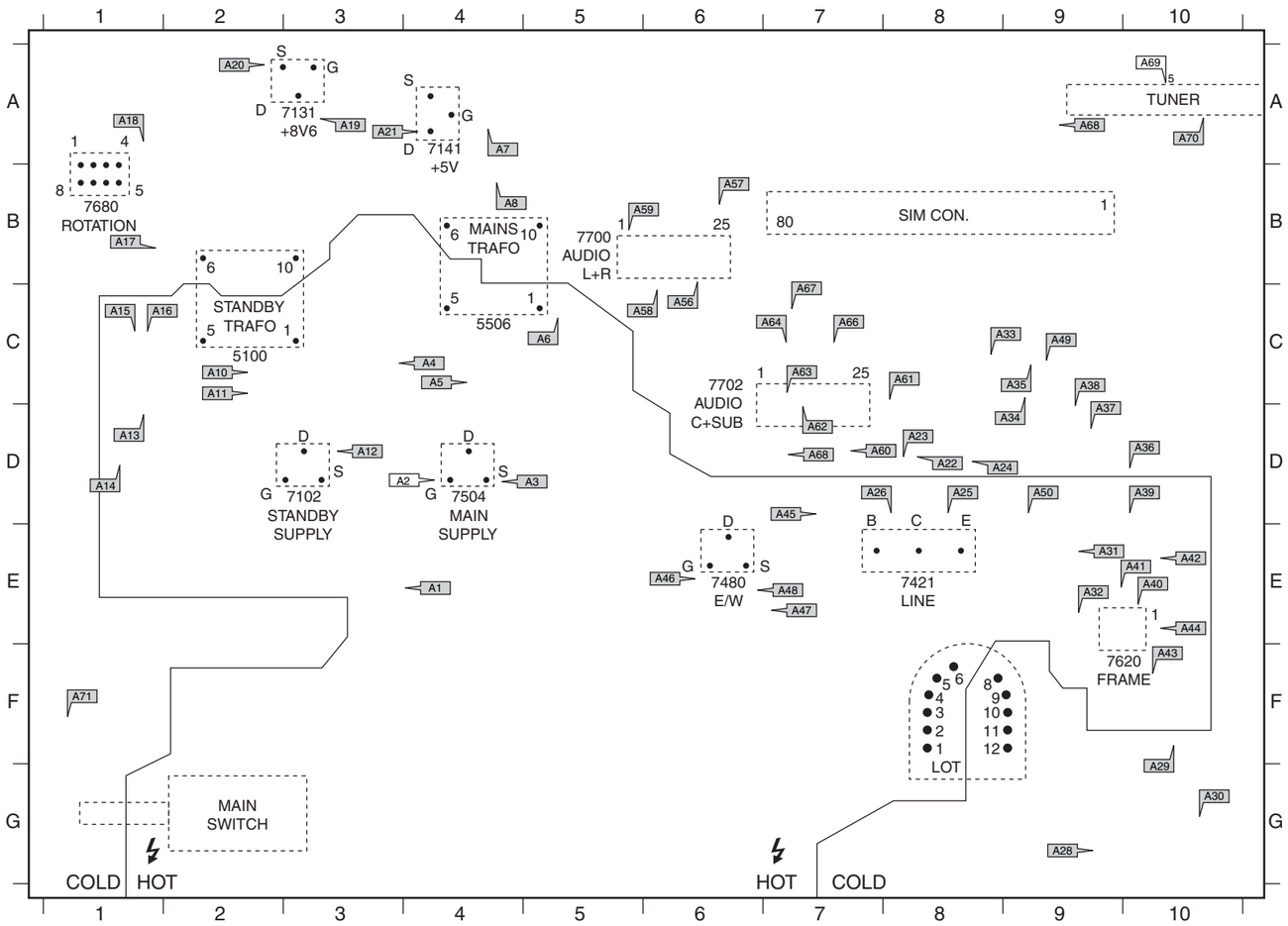
Block Diagram Supply and Deflection



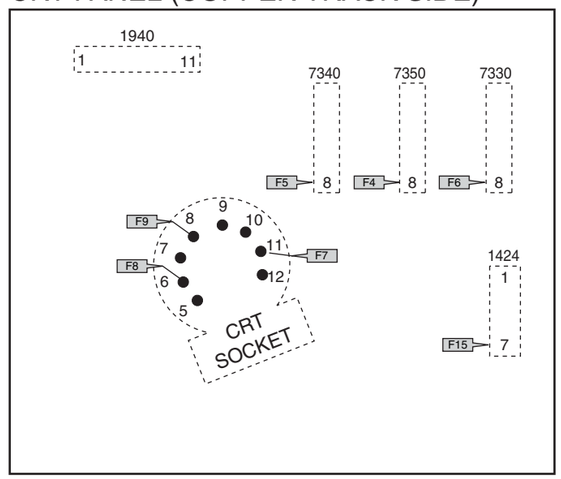
Testpoint Overview LSP and CRT Panel

LSP COPPER TRACK SIDE

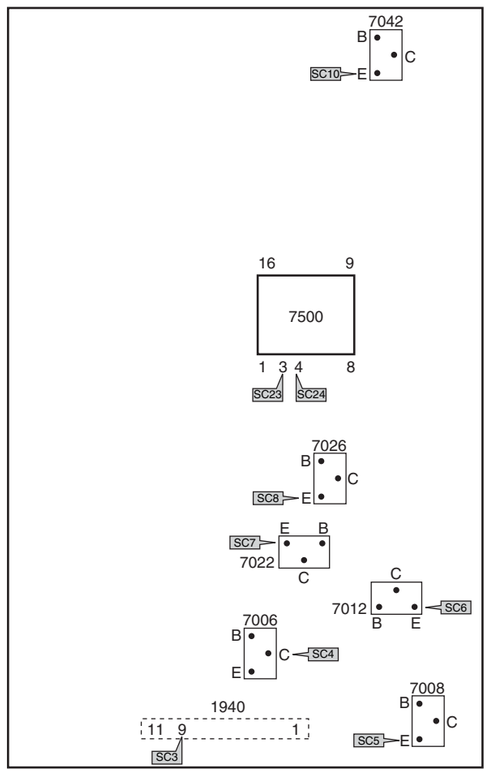


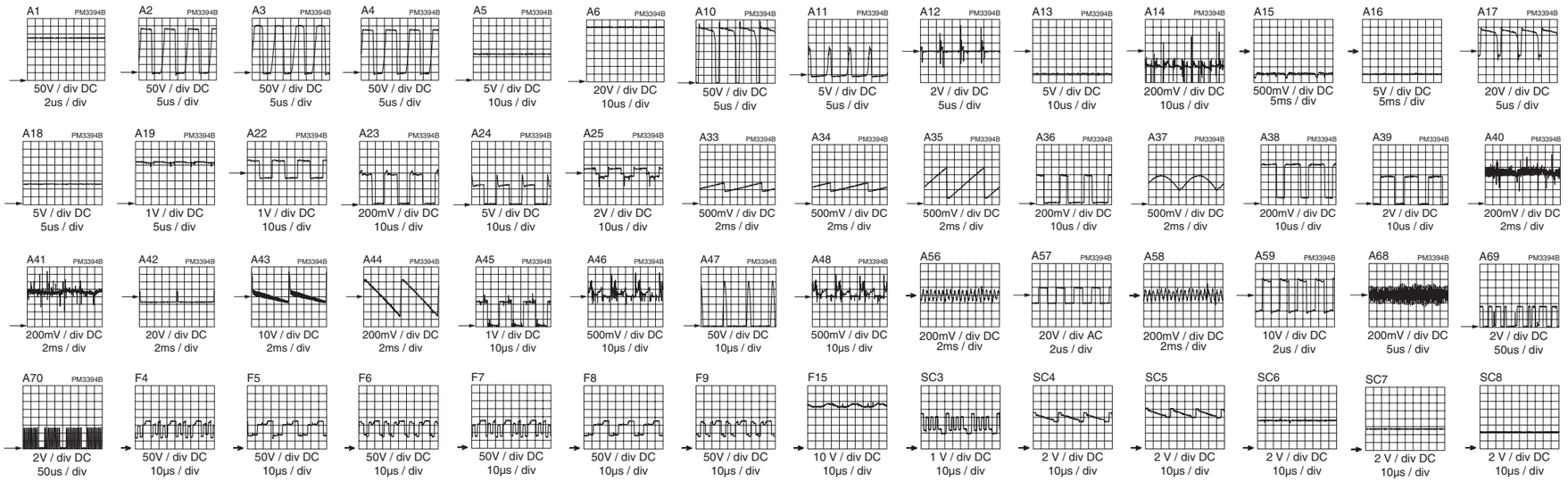
A1	E4	A58	C6
A3	D4	A59	B5
A4	C4	A60	D7
A5	C4	A61	C8
A6	C5	A62	D7
A7	A4	A63	D7
A8	B4	A64	C7
A10	C2	A66	C7
A11	C2	A67	C7
A12	D3	A70	A10
A13	D1	A71	F1
A14	D1	A88	A9
A15	C1		
A16	C1		
A17	B1		
A18	A1		
A19	A3		
A20	A2		
A21	A3		
A22	D8		
A23	D8		
A24	D8		
A25	D8		
A26	D7		
A28	G9		
A29	G10		
A30	G10		
A31	E9		
A32	E9		
A33	C8		
A34	D9		
A35	C9		
A36	D10		
A37	D9		
A38	C9		
A39	D10		
A40	E10		
A41	E10		
A42	E10		
A43	F10		
A44	E10		
A45	D7		
A46	E6		
A47	E7		
A48	E7		
A49	C9		
A50	D9		
A56	C6		
A57	B6		

CRT PANEL (COPPER TRACK SIDE)



AUTO SCAVEM PANEL (COPPER TRACK SIDE)

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A3 PM3394B 50V / div DC 5us / div
A4 PM3394B 50V / div DC 5us / div
A5 PM3394B 5V / div DC 10us / div
A6 PM3394B 20V / div DC 10us / div
A10 PM3394B 50V / div DC 5us / div
A11 PM3394B 5V / div DC 5us / div
A12 PM3394B 2V / div DC 5us / div
A13 PM3394B 5V / div DC 10us / div
A14 PM3394B 200mV / div DC 10us / div
A15 500mV / div DC 5ms / div
A16 5V / div DC 5ms / div
A17 PM3394B 20V / div DC 5us / div
A18 PM3394B 5V / div DC 5us / div
A19 PM3394B 1V / div DC 5us / div
A22 PM3394B 1V / div DC 10us / div
A23 PM3394B 200mV / div DC 10us / div
A24 PM3394B 5V / div DC 10us / div
A25 PM3394B 2V / div DC 10us / div
A33 PM3394B 500mV / div DC 2ms / div
A34 500mV / div DC 2ms / div
A35 PM3394B 500mV / div DC 2ms / div
A36 PM3394B 200mV / div DC 10us / div
A37 PM3394B 500mV / div DC 2ms / div
A38 PM3394B 200mV / div DC 10us / div
A39 PM3394B 2V / div DC 10us / div
A40 PM3394B 200mV / div DC 2ms / div
A41 PM3394B 200mV / div DC 2ms / div
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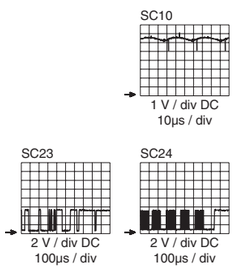
A43 10V / div DC 2ms / div
A44 200mV / div DC 2ms / div
A45 1V / div DC 10µs / div
A46 500mV / div DC 10µs / div
A47 PM3394B 50V / div DC 10µs / div
A48 PM3394B 500mV / div DC 10µs / div
A56 200mV / div DC 2ms / div
A57 PM3394B 20V / div AC 2us / div
A58 200mV / div DC 2ms / div
A59 PM3394B 10V / div DC 2us / div
A68 PM3394B 200mV / div DC 5us / div
A69 PM3394B 2V / div DC 50us / div
A70 PM3394B 2V / div DC 50us / div
F4 50V / div DC 10µs / div
F5 50V / div DC 10µs / div
F6 50V / div DC 10µs / div
F7 50V / div DC 10µs / div
F8 50V / div DC 10µs / div
F9 50V / div DC 10µs / div
F15 10 V / div DC 10µs / div
SC3 1 V / div DC 10µs / div
SC4 2 V / div DC 10µs / div
SC5 2 V / div DC 10µs / div
SC6 2 V / div DC 10µs / div
SC7 2 V / div DC 10µs / div
SC8 2 V / div DC 10µs / div



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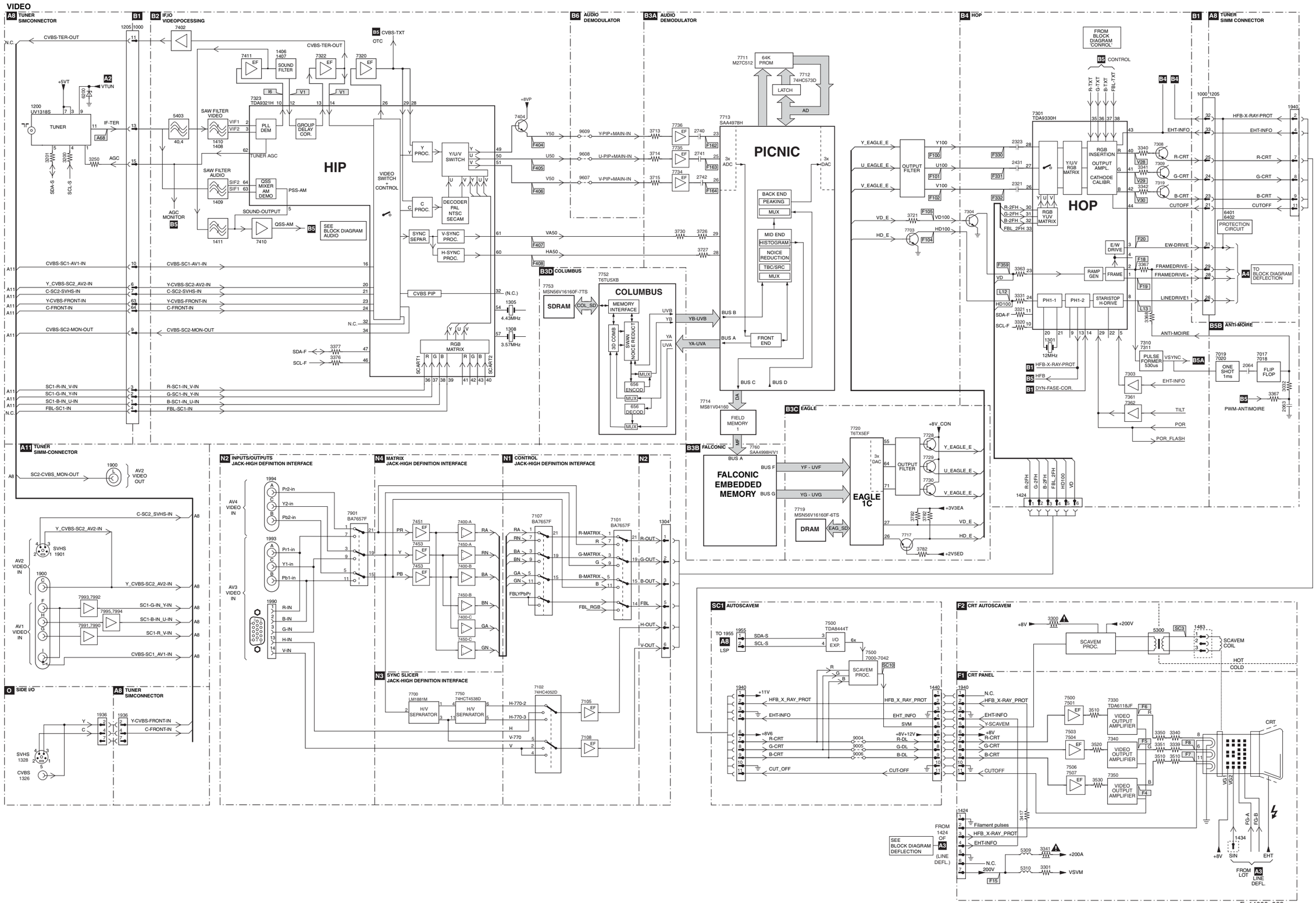
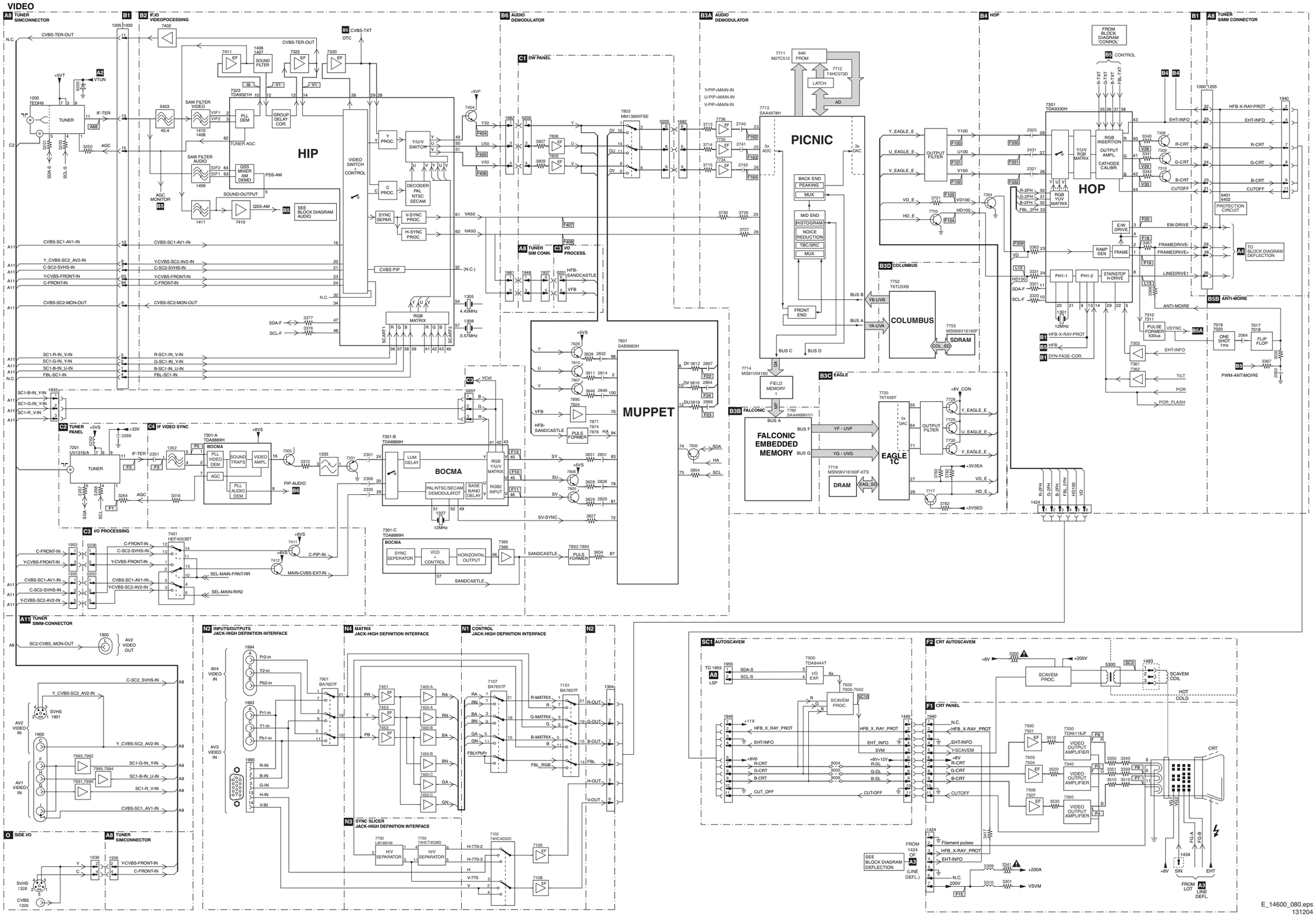
Block Diagram Video

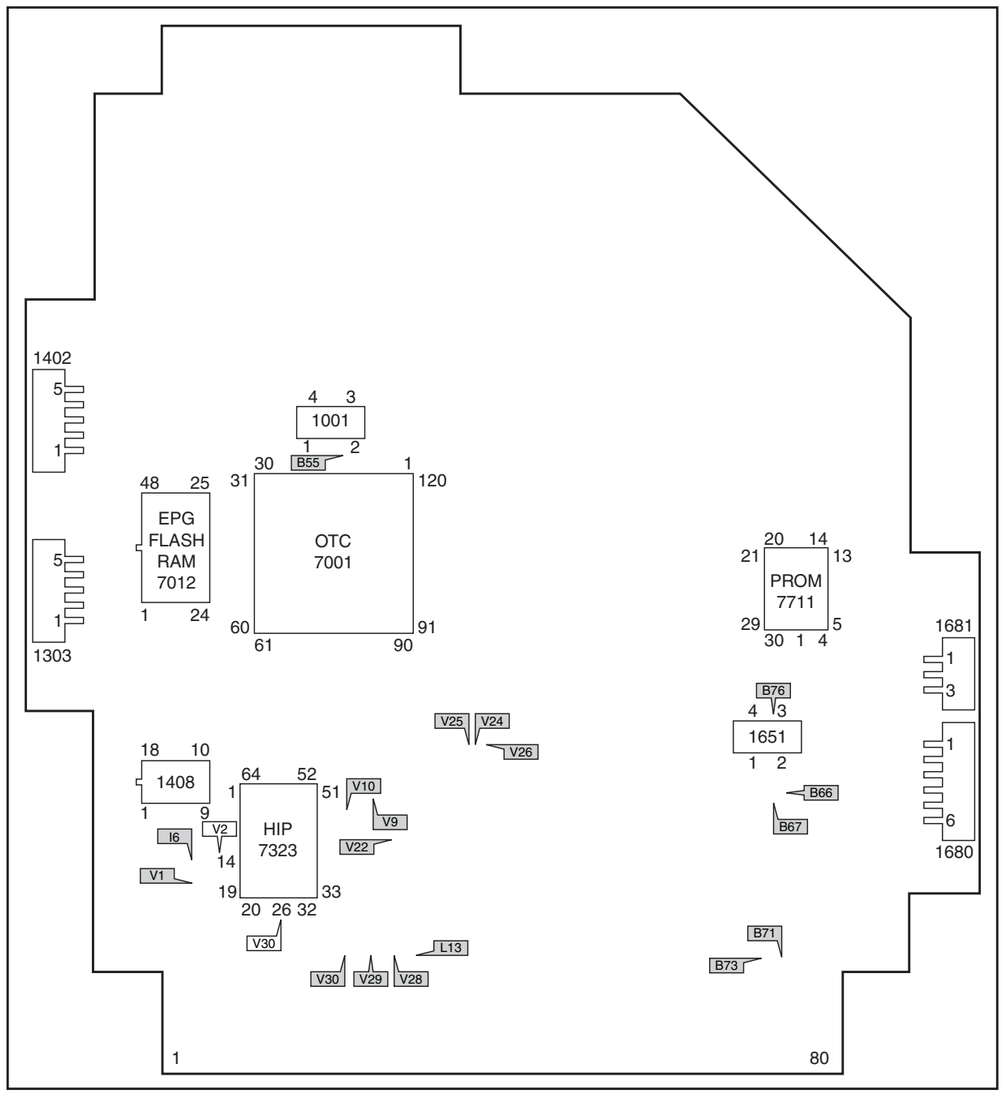


Block Diagram Video (For Dual Window Versions)

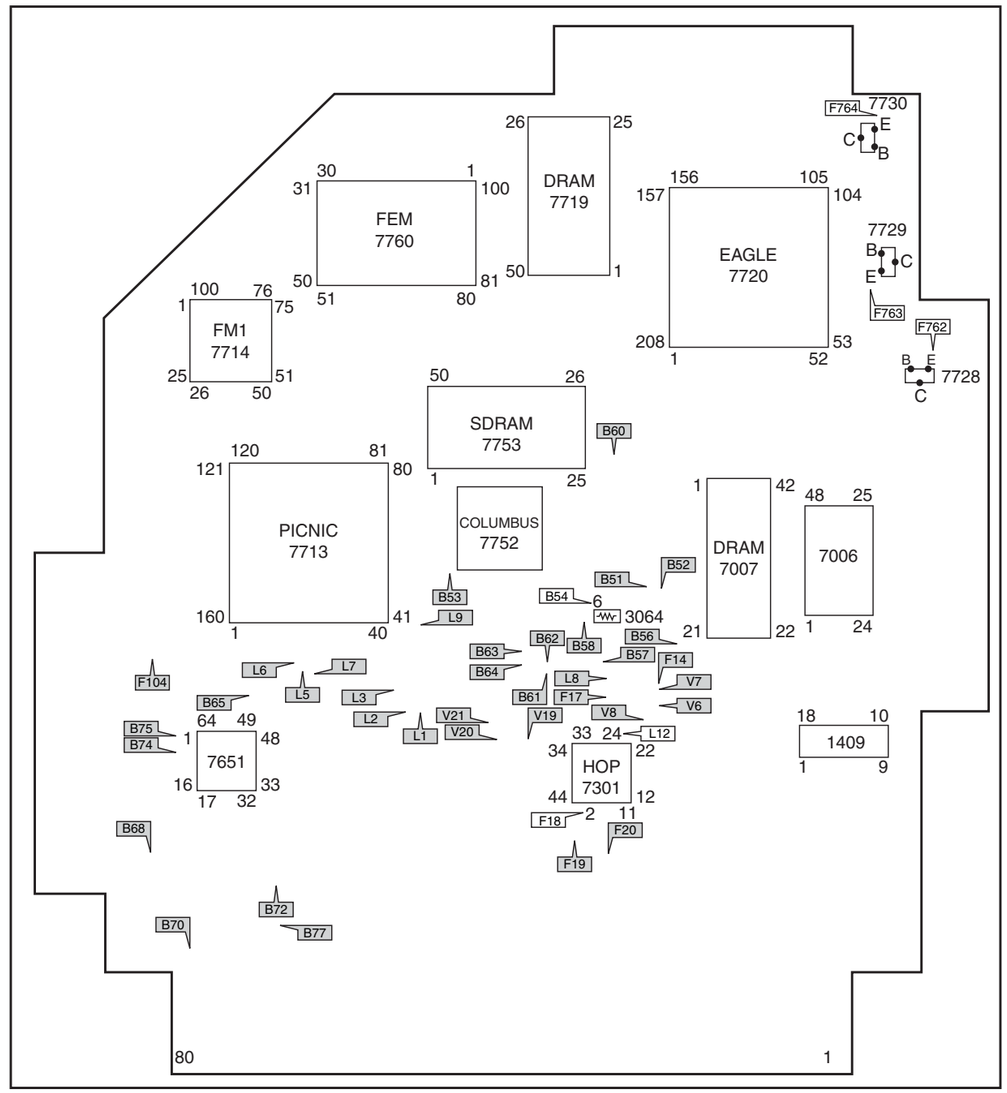


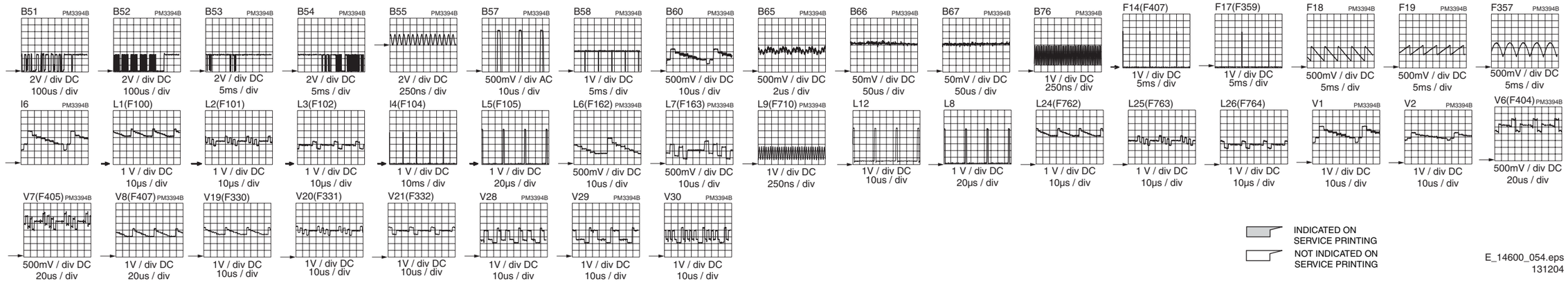
Testpoint Overview Small Signal Board

SSB SIDE A



SSB SIDE Z

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B52 PM3394B 2V / div DC 100us / div
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B55 PM3394B 2V / div DC 250ns / div
B57 PM3394B 500mV / div AC 10us / div
B58 PM3394B 1V / div DC 5ms / div
B60 PM3394B 500mV / div DC 10us / div
B65 PM3394B 500mV / div DC 2us / div
B66 PM3394B 50mV / div DC 50us / div
B67 PM3394B 50mV / div DC 50us / div
B76 PM3394B 1V / div DC 250ns / div
F14(F407) 1V / div DC 5ms / div
F17(F359) 1V / div DC 5ms / div
F18 PM3394B 500mV / div DC 5ms / div
F19 PM3394B 500mV / div DC 5ms / div
F357 PM3394B 500mV / div DC 5ms / div
I6 PM3394B
L1(F100) 1 V / div DC 10µs / div
L2(F101) 1 V / div DC 10µs / div
L3(F102) 1 V / div DC 10µs / div
I4(F104) 1 V / div DC 10ms / div
L5(F105) 1 V / div DC 20µs / div
L6(F162) PM3394B 500mV / div DC 10us / div
L7(F163) PM3394B 500mV / div DC 10us / div
L9(F710) PM3394B 1V / div DC 250ns / div
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L8 1 V / div DC 20µs / div
L24(F762) 1 V / div DC 10µs / div
L25(F763) 1 V / div DC 10µs / div
L26(F764) 1 V / div DC 10µs / div
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V2 PM3394B 1V / div DC 10us / div
V6(F404) PM3394B 500mV / div DC 20us / div
V7(F405) PM3394B 500mV / div DC 20us / div
V8(F407) PM3394B 1V / div DC 20us / div
V19(F330) 1V / div DC 10us / div
V20(F331) 1V / div DC 10us / div
V21(F332) 1V / div DC 10us / div
V28 PM3394B 1V / div DC 10us / div
V29 PM3394B 1V / div DC 10us / div
V30 PM3394B 1V / div DC 10us / div
INDICATED ON SERVICE PRINTING
NOT INDICATED ON SERVICE PRINTING

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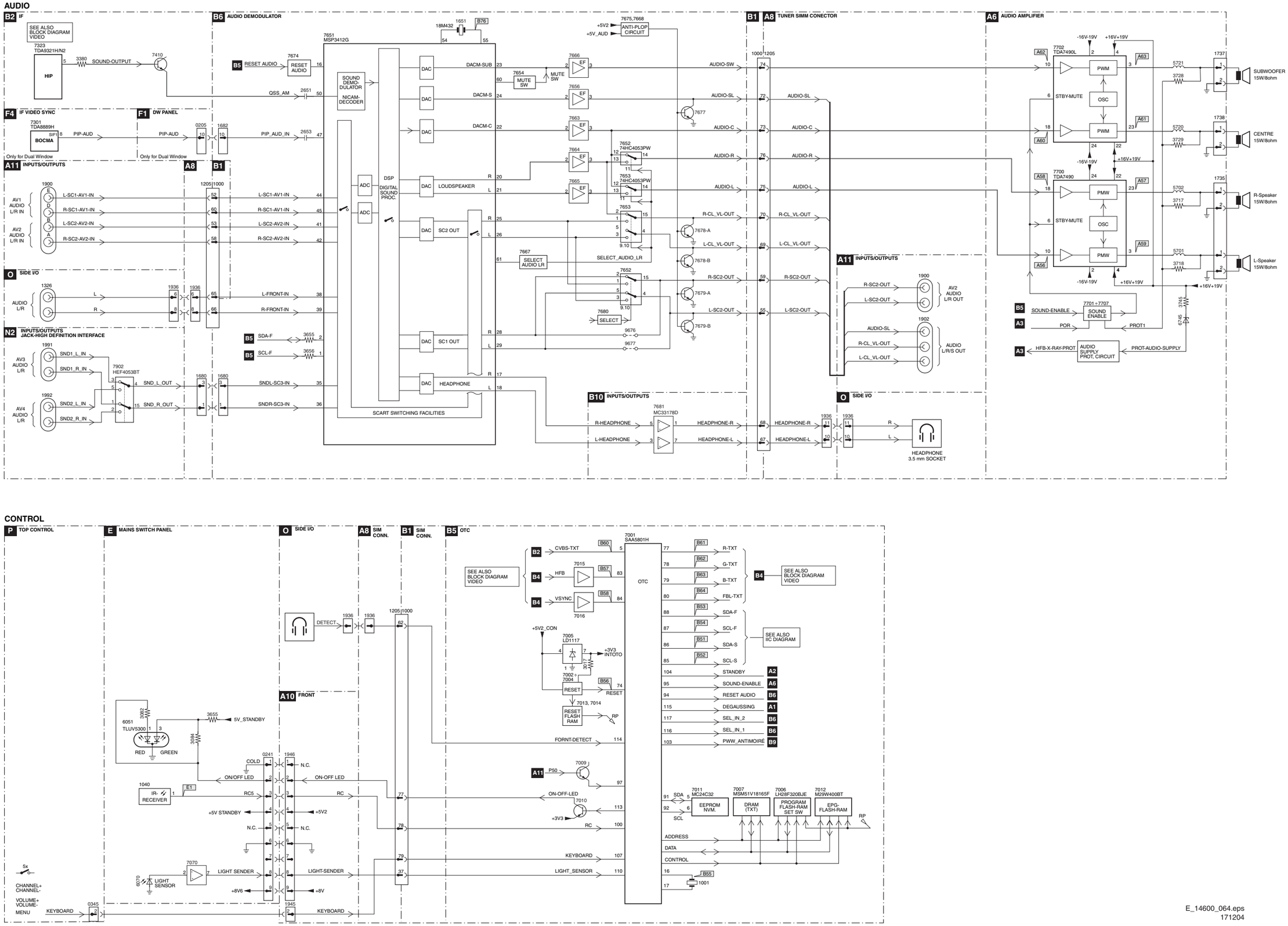
Block Diagram Audio 1 (Exclusive Wireless Audio Details)



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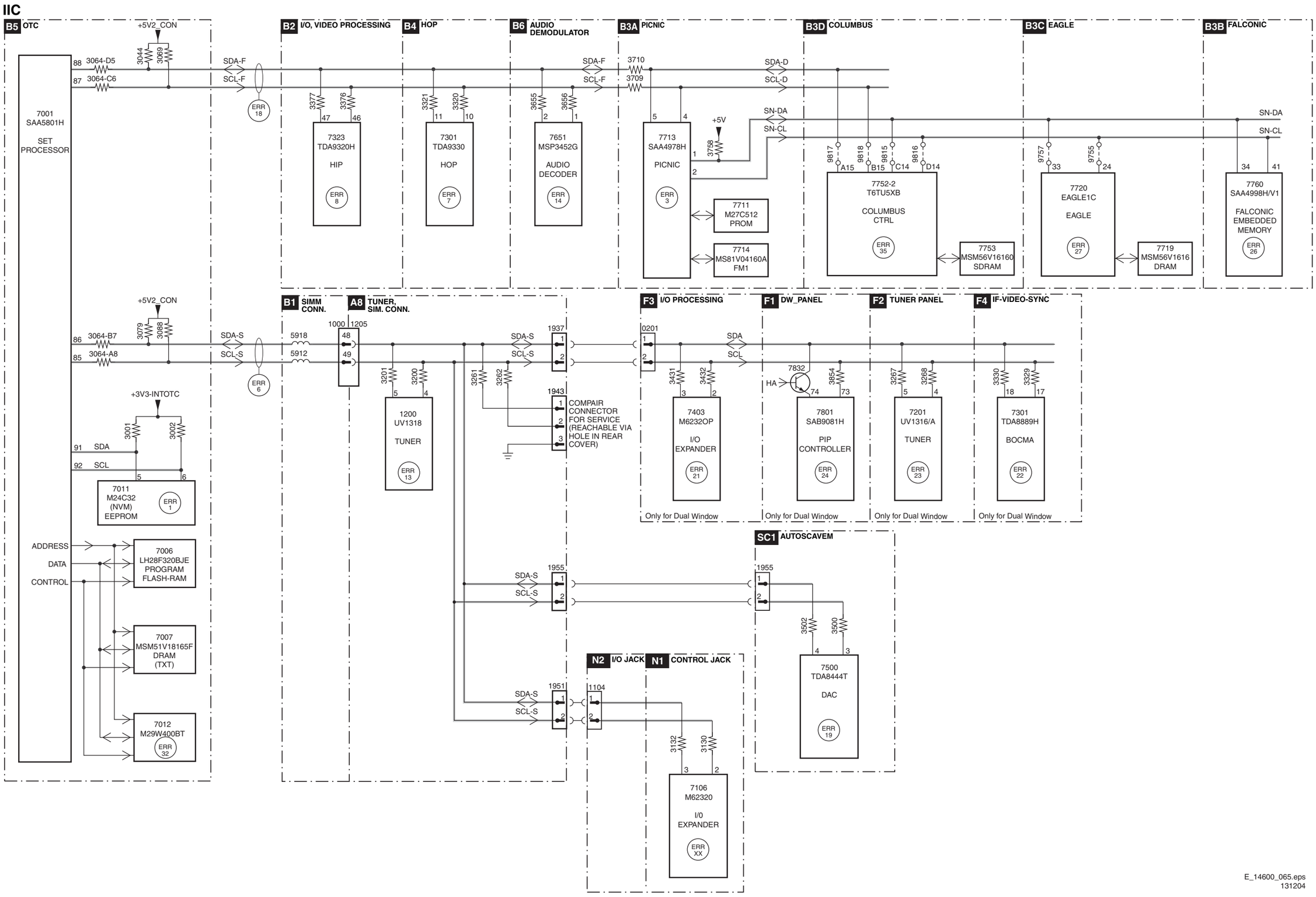
I2C IC's overview



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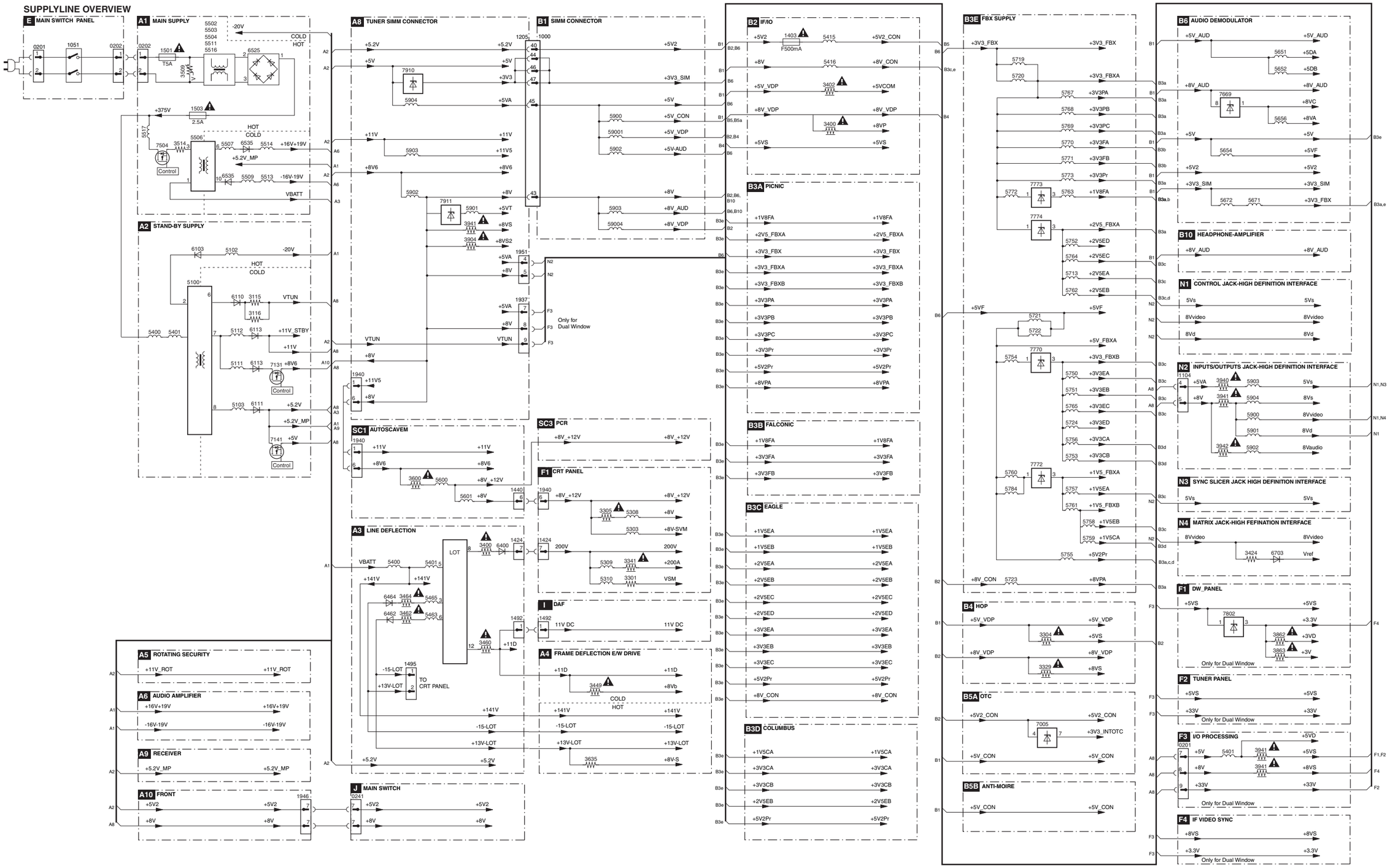
Supply Lines Overview



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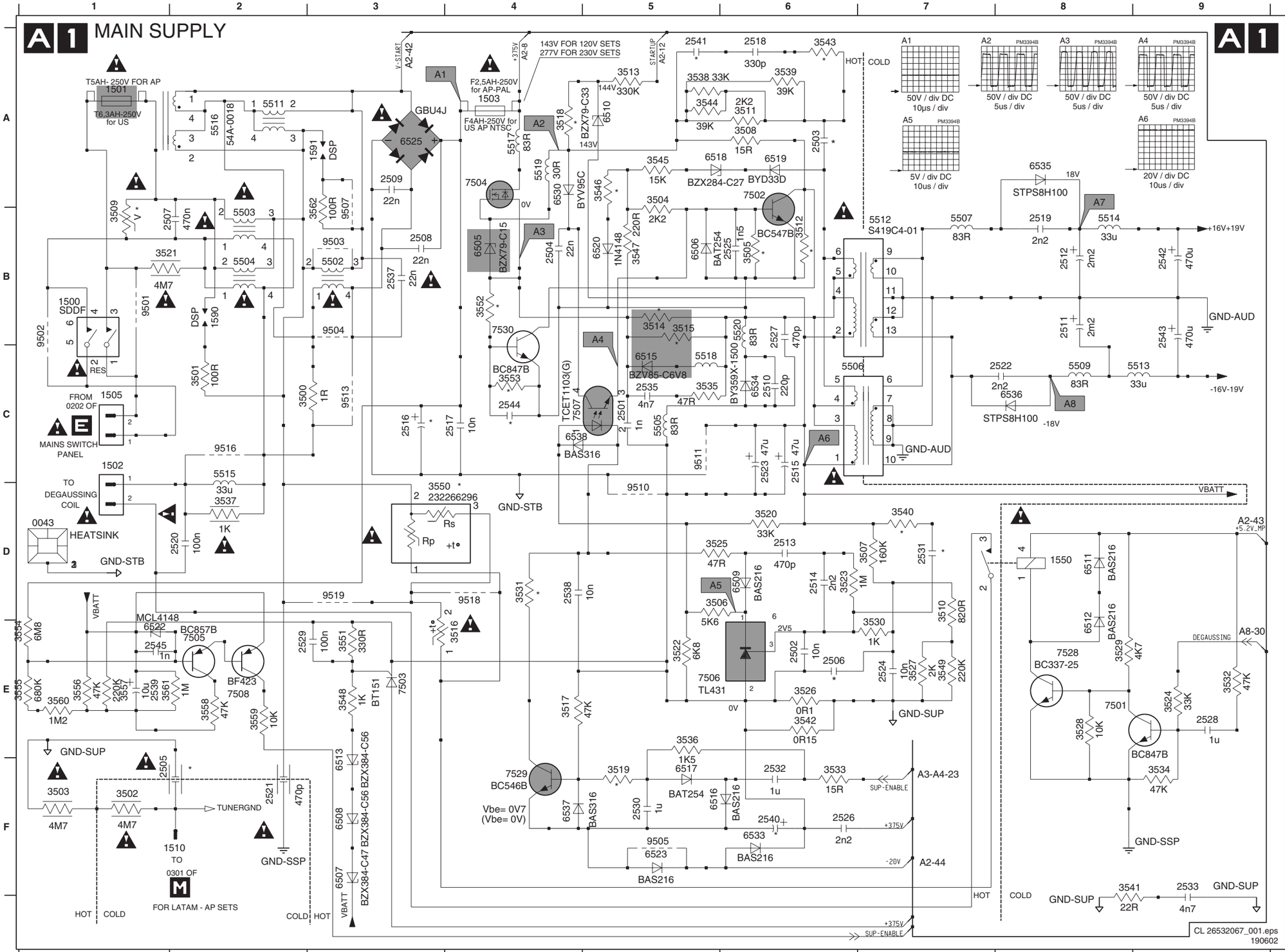
7. Circuit Diagrams and PWB Layouts

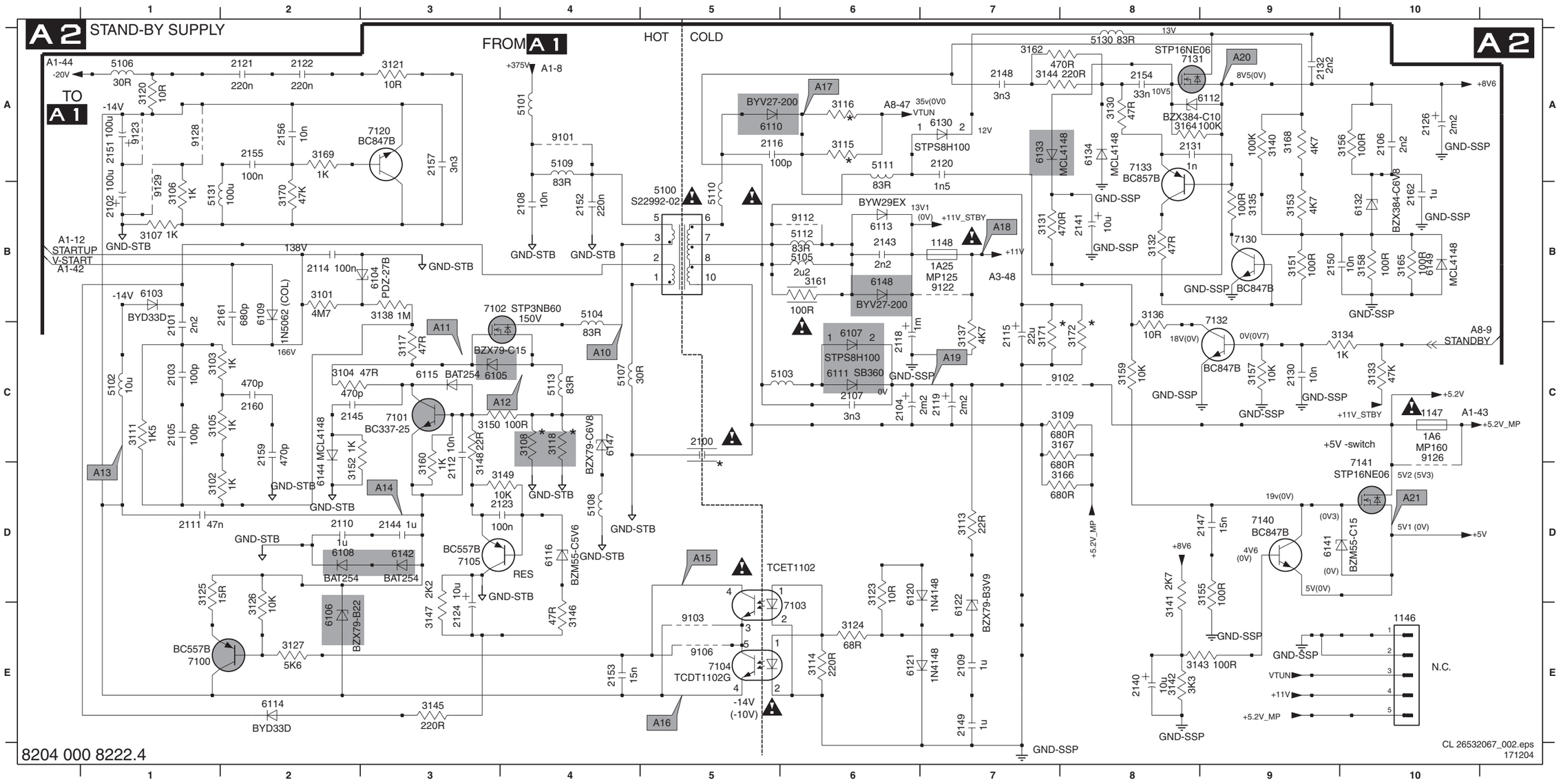
Large Signal Panel: Main Supply



0043 D1	3511 A6	5516 A2	
1500 B1	3512 B6	5517 A4	
1501 A1	3513 A5	5518 C5	
1502 C1	3514 B5	5519 A4	
1503 A4	3515 B5	5520 B6	
1505 C1	3516 E4	6505 B4	
1510 F2	3517 E4	6506 B5	
1550 D8	3518 A4	6507 F3	
1590 B2	3519 F5	6508 F3	
1591 A3	3520 D6	6509 D6	
2501 C5	3521 B1	6510 A5	
2502 E6	3522 E5	6511 D8	
2503 A6	3523 D6	6512 E8	
2504 B4	3524 E9	6513 F3	
2505 F1	3525 D5	6515 C5	
2506 E6	3526 E6	6516 F5	
2507 B2	3527 E7	6517 F5	
2508 B3	3528 E8	6518 A5	
2509 A3	3529 E8	6519 A6	
2510 C6	3530 E7	6520 B5	
2511 B8	3531 D4	6522 E1	
2512 B8	3532 E9	6523 F5	
2513 D6	3533 F6	6525 A3	
2514 D6	3534 F9	6530 A4	
2515 C6	3535 C5	6533 F6	
2516 C3	3536 E5	6534 C6	
2517 C4	3537 D2	6535 A8	
2518 A6	3538 A5	6536 C8	
2519 B8	3539 A6	6537 F4	
2520 D2	3540 D7	6538 C4	
2521 F2	3541 F8	7501 E8	
2522 C8	3542 E6	7502 A6	
2523 C6	3543 A6	7503 E3	
2524 E7	3544 A5	7504 A4	
2525 B6	3545 A5	7505 E2	
2526 F6	3546 A5	7506 E5	
2527 B6	3547 B5	7507 C4	
2528 E9	3548 E3	7508 E2	
2529 E2	3549 E7	7528 E8	
2530 F5	3550 D3	7529 F4	
2531 D7	3551 E3	7530 B4	
2532 F6	3552 B4	9501 B1	
2533 F9	3553 C4	9502 B1	
2535 C5	3554 E1	9503 B3	
2537 B3	3555 E1	9504 B3	
2538 D4	3556 E1	9505 F5	
2539 E1	3557 E1	9507 B3	
2540 F6	3558 E2	9510 D5	
2541 A5	3559 E2	9511 C5	
2542 B9	3560 E1	9513 C3	
2543 B9	3561 E1	9516 C2	
2544 C4	3562 B3	9518 D4	
2545 E1	5502 B3	9519 D3	
3500 C2	5503 B2		
3501 C2	5504 B2		
3502 F1	5505 C5		
3503 F1	5506 C6		
3504 A5	5507 B7		
3505 B6	5509 C8		
3506 D5	5511 A2		
3507 D7	5512 B7		
3508 A6	5513 C9		
3509 B1	5514 B8		
3510 D7	5515 C2		

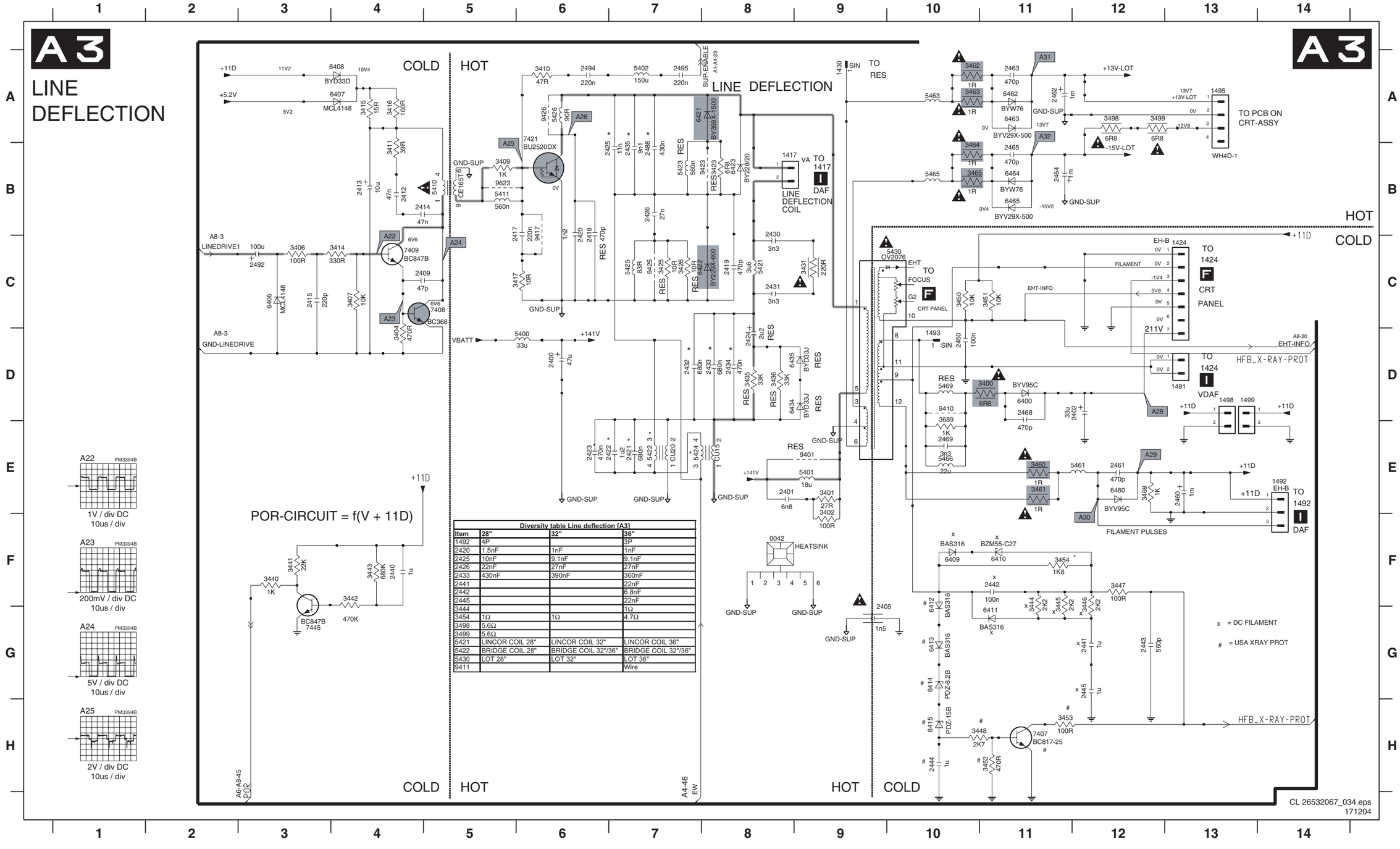
Large Signal Panel: Stand-by Supply

1146 E10	2109 E7	2123 D4	2148 A7	2161 B2	3113 D7	3127 E2	3142 E8	3155 D9	3168 A9	5107 C4	6106 E2	6121 E6	7100 E1	7141 D10
1147 C10	2110 D2	2124 E3	2149 E7	2162 B10	3114 E6	3130 A8	3143 E8	3156 A10	3169 A2	5108 D4	6107 C6	6122 E7	7101 C3	9101 A4
1148 B7	2111 D1	2126 A10	2150 B9	3101 B2	3115 A6	3131 B7	3144 A7	3157 C9	3170 B2	5109 A4	6108 D2	6130 A7	7102 B3	9102 C8
2100 C5	2112 D3	2130 C9	2151 A1	3102 D1	3116 A6	3132 B8	3145 E3	3158 B10	3171 C7	5110 B5	6109 B2	6132 B10	7103 E6	9103 E5
2101 C1	2114 B2	2131 A8	2152 B4	3103 C1	3117 C3	3133 C10	3146 E4	3159 C8	3172 C8	5111 A6	6110 A5	6133 A7	7104 E5	9106 E5
2102 B1	2115 C7	2132 A9	2153 E4	3104 C2	3118 C4	3134 C10	3147 E3	3160 D3	5100 B5	5112 B6	6111 C6	6134 A8	7105 D3	9112 B6
2103 C1	2116 A5	2140 E8	2154 A8	3105 C1	3120 A1	3135 B9	3148 D3	3161 B6	5101 A4	5113 C4	6112 A9	6141 D9	7120 A3	9122 B7
2104 C6	2118 C6	2141 B8	2155 A2	3106 B1	3121 A3	3136 B8	3149 D4	3162 A7	5102 C1	5130 A8	6113 B6	6142 D3	7130 B9	9123 A1
2105 C1	2119 C7	2143 B6	2156 A2	3107 B1	3123 D6	3137 C7	3150 C3	3164 A8	5103 C6	5131 B1	6114 E2	6144 D2	7131 A8	9126 C10
2106 A10	2120 A7	2144 D3	2157 A3	3108 C4	3124 E6	3138 B3	3151 B9	3165 B10	5104 B4	6103 B1	6115 C3	6147 C4	7132 C9	9128 A1
2107 C6	2121 A2	2145 C2	2159 C2	3109 C8	3125 D1	3140 A9	3152 D2	3166 D8	5105 B6	6104 B3	6116 D4	6148 B6	7133 A8	9129 B1
2108 B4	2122 A2	2147 D9	2160 C2	3111 C1	3126 E2	3141 E8	3153 B9	3167 C8	5106 A1	6105 C3	6120 D6	6149 B10	7140 D9	



Large Signal Panel: Line Deflection

0042 F8	1498 D13	2413 B4	2422 E7	2433 D8	2445 G12	2468 D11	3402 F9	3415 A4	3436 D8	3447 F11	3461 E11	3689 E10	5423 B7	5466 E10	6411 F10	6434 D8	7408 C5	9425 C7
1417 B8	1499 D13	2414 B4	2423 E6	2434 D8	2450 D10	2469 E10	3404 D4	3416 A4	3440 F3	3448 H10	3462 A10	5400 D6	5424 E7	5469 D10	6412 F10	6435 D8	7409 C4	9426 A6
1424 C13	2400 D6	2415 C3	2424 D8	2435 B7	2460 E13	2488 B7	3406 C3	3417 C6	3441 F3	3450 C10	3463 A10	5401 E9	5425 C7	6400 D11	6413 G10	6460 E12	7421 A6	9623 B5
1430 A10	2401 E8	2417 B6	2425 B7	2440 F4	2461 E12	2492 C3	3407 C4	3423 B8	3442 F4	3451 C11	3464 B10	5402 A7	5426 A6	6406 C3	6414 G10	6462 A11	7445 F3	
1491 D13	2402 D12	2418 B6	2426 B7	2441 G12	2462 A11	2494 A6	3409 B5	3425 C7	3443 F4	3452 H11	3465 B10	5410 B5	5430 C10	6407 A4	6415 H10	6463 A11	9401 E9	
1492 E14	2405 G9	2419 C8	2430 C8	2442 F10	2463 A11	2495 A7	3410 A6	3426 C7	3444 F12	3453 H11	3469 E12	5411 B5	5461 E12	6408 A4	6421 A7	6464 B11	9410 D10	
1493 D10	2409 C4	2420 B6	2431 C8	2443 G11	2464 B11	3400 D11	3411 B4	3431 C9	3445 F13	3454 F11	3498 A12	5421 C8	5463 A10	6409 F10	6422 C7	6465 B11	9417 B6	
1495 A13	2412 B4	2421 E7	2432 D7	2444 H10	2465 B11	3401 E9	3414 C4	3435 D8	3446 F13	3460 E11	3499 A12	5422 E7	5465 B10	6410 F11	6423 B8	7407 H11	9423 B8	



Diversity table Line deflection [A3]			
Item	28"	32"	36"
1492	4P		3P
2420	1.5nF	1nF	1nF
2425	10nF	9.1nF	9.1nF
2426	22nF	27nF	27nF
2433	430nF	390nF	360nF
2441			22nF
2442			6.8nF
2445			22nF
3444			1Ω
3454	1Ω	1Ω	4.7Ω
3498	5.6Ω		
3499	5.6Ω		
5421	LINCOR COIL 28"	LINCOR COIL 32"	LINCOR COIL 36"
5422	BRIDGE COIL 28"	BRIDGE COIL 32"/36"	BRIDGE COIL 32"/36"
5430	LOT 28"	LOT 32"	LOT 36"
9411			Wire

A22 PM3394B — 1V / div DC, 10us / div

A23 PM3394B — 200mV / div DC, 10us / div

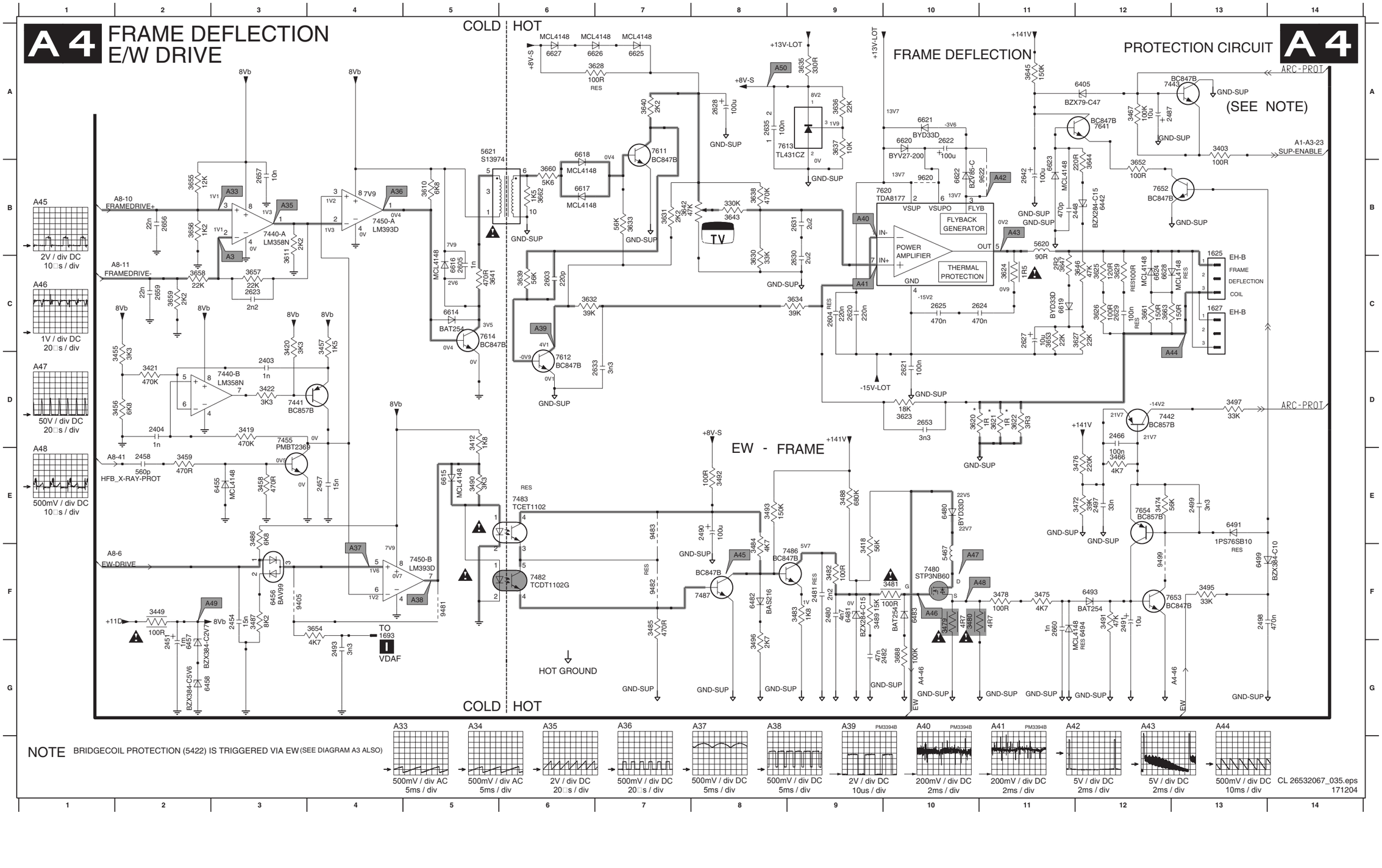
A24 PM3394B — 5V / div DC, 10us / div

A25 PM3394B — 2V / div DC, 10us / div

Large Signal Panel: Frame Deflection E/W Drive

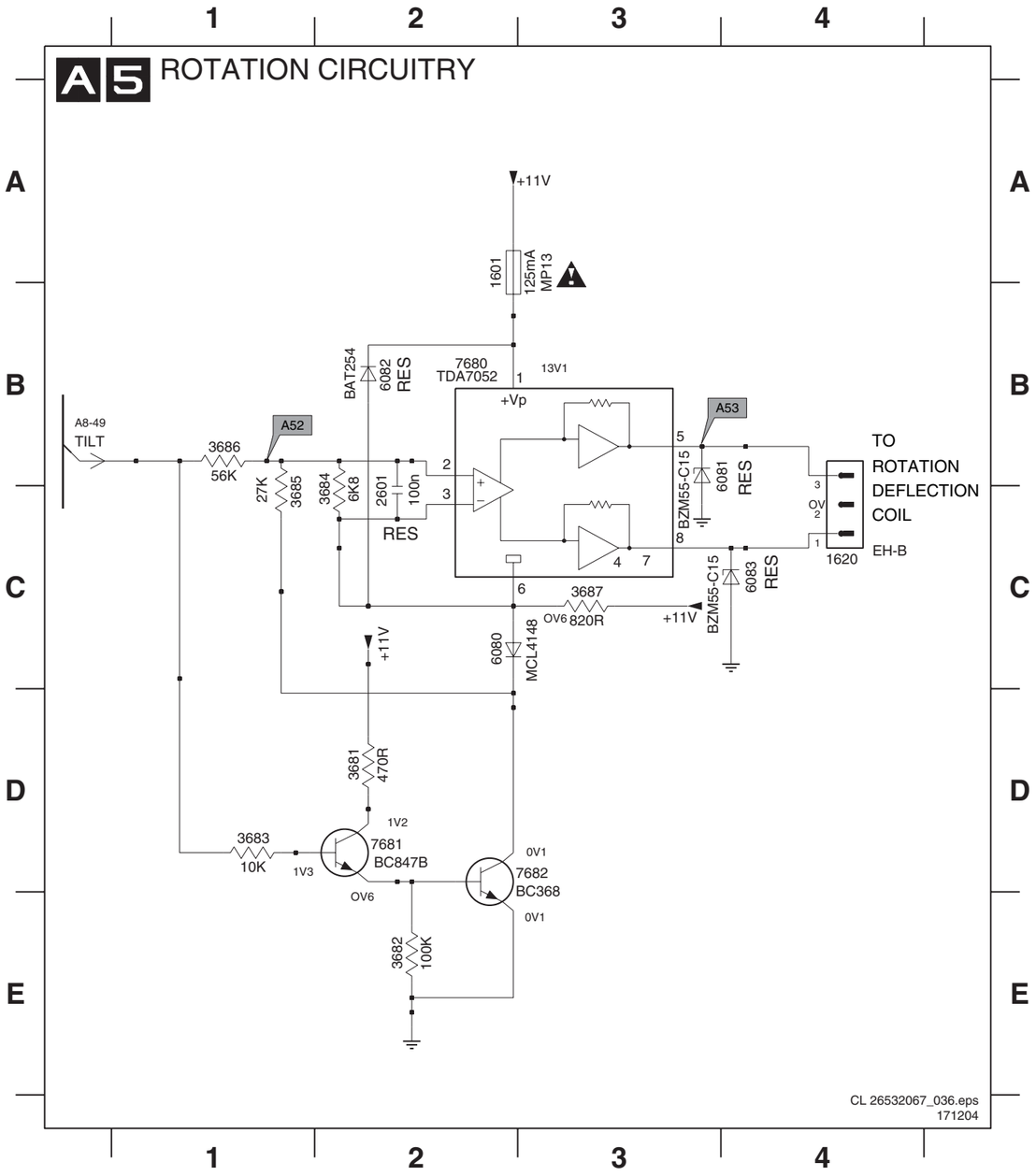
1625 C13	2481 F9	2620 C9	2635 A8	3421 D2	3475 F11	3488 E9	3621 D11	3633 B7	3645 A11	3661 C12	6458 G2	6617 B6	7440-A B3	7487 F8	9482 F7
1627 C13	2482 G10	2621 D10	2642 B11	3422 D3	3476 E12	3489 F9	3622 D11	3634 C9	3646 C12	3662 B6	6480 E10	6618 A6	7440-B D3	7611 A7	9483 E7
1693 F4	2487 A12	2622 A10	2653 D10	3449 F2	3478 F11	3490 E5	3623 D10	3635 A9	3647 C11	3663 C12	6481 F9	6619 C11	7441 D3	7612 D6	9499 F12
2403 D3	2490 E8	2623 C3	2656 B2	3455 D2	3479 F10	3491 F12	3624 C11	3636 A9	3652 B12	3688 G10	6482 F8	6620 A10	7442 D13	7613 A8	9620 B10
2404 D2	2491 F12	2624 C11	2657 B3	3456 D2	3480 F10	3492 E8	3625 C12	3637 A9	3653 C11	5467 F10	6483 F10	6621 A10	7443 A12	7614 C5	9622 B11
2448 B12	2493 G4	2625 C10	2659 C2	3457 C4	3481 F10	3493 E8	3626 C12	3638 B8	3654 F4	5620 B11	6491 E13	6622 B10	7450-A B4	7620 B9	
2451 G2	2497 E12	2627 C11	2660 F11	3458 E3	3482 F9	3495 F13	3627 C12	3639 C6	3655 B2	5621 A5	6493 F12	6623 B11	7450-B F5	7641 A12	
2454 F3	2498 F13	2628 A8	3403 A13	3459 E2	3483 F9	3496 G8	3628 A7	3640 A7	3656 B2	6405 A12	6494 F12	6624 C12	7455 D3	7652 B12	
2457 E4	2499 E13	2629 C12	3412 D5	3466 E12	3484 F8	3497 D13	3629 C12	3641 C5	3657 C3	6442 B12	6499 F13	6625 A7	7480 F10	7653 F12	
2458 E2	2603 C6	2630 C9	3418 F9	3467 A12	3485 F7	3610 B5	3630 C8	3642 B7	3658 C2	6455 E3	6614 C5	6626 A7	7482 F6	7654 E12	
2466 D12	2604 C9	2631 B9	3419 D3	3472 E12	3486 E3	3611 C3	3631 B7	3643 B8	3659 C2	6456 F3	6615 E5	6627 A6	7483 E6	9405 F3	
2480 F9	2605 C5	2633 D7	3420 C3	3474 E12	3487 F3	3620 D10	3632 C6	3644 B12	3660 B6	6457 G2	6616 C5	6628 C12	7486 F8	9481 F5	

Diversity table Frame deflection [A4]			
Item	28"	32"	36"
1693			1P
2493			3.3nF
3480		6,8Ω	
3488	1MΩ	680kΩ	1MΩ
3621	1Ω	1.5Ω	1Ω
3622	1.5Ω	1.8Ω	1Ω
3625	120Ω	220Ω	56Ω
3626	100Ω	220Ω	56Ω
3654			4,7kΩ
3661		470Ω	120Ω
6499	BZX384-C10	PDZ9.1B	BZX384-C10
6624		BAS316	BAS316



Large Signal Panel: Rotation Circuitry

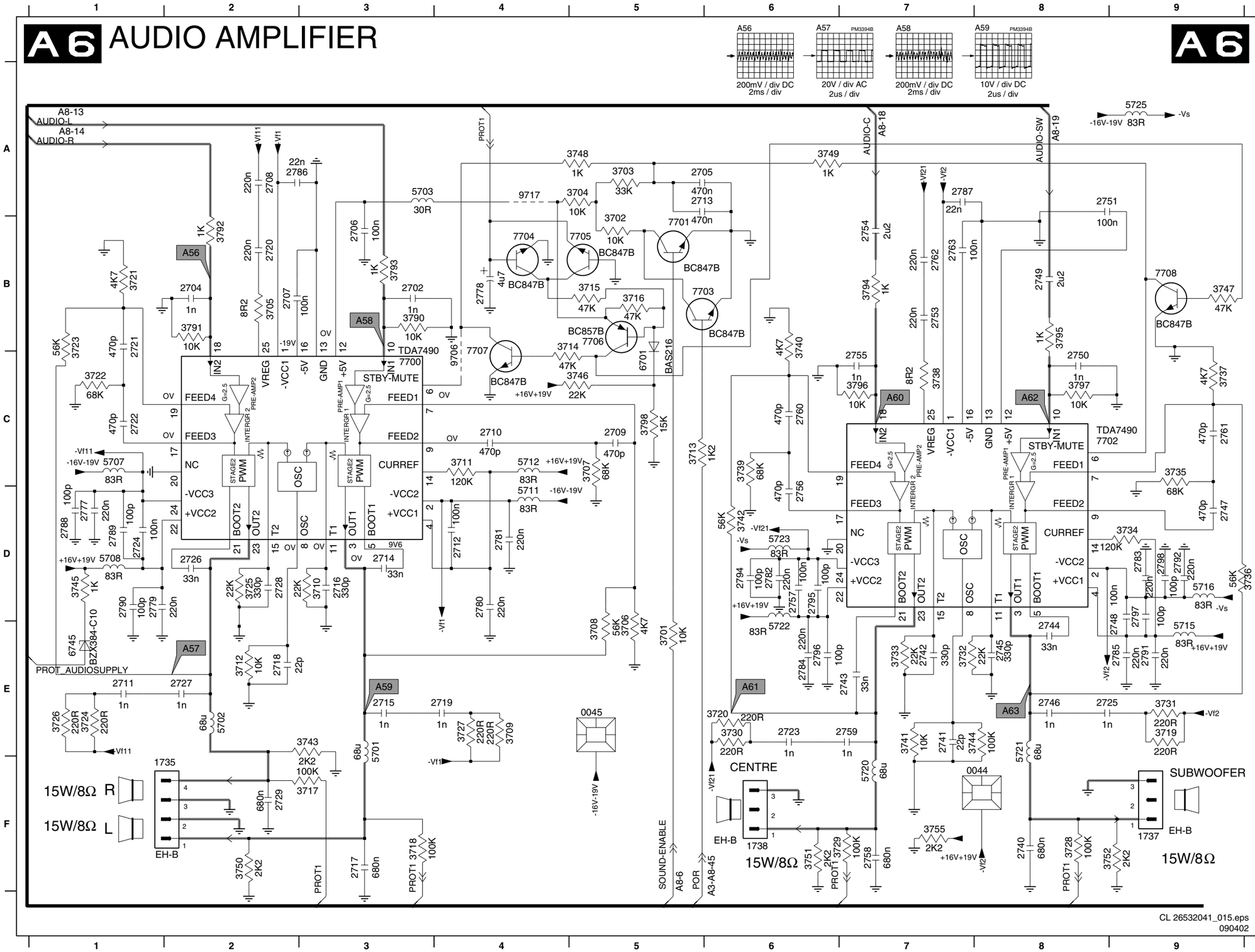
1601 A2	3681 D2	3684 C2	3687 C3	6082 B2	7681 D2
1620 C4	3682 E2	3685 C1	6080 C2	6083 C4	7682 D2
2601 C2	3683 D1	3686 B1	6081 B3	7680 B2	



Personal Notes:

Large Signal Panel: Audio Amplifier

A6 AUDIO AMPLIFIER



0044 F7	2785 E9	3751 F6
0045 E5	2786 A2	3752 F9
1735 F2	2787 A7	3755 F7
1737 F9	2788 D1	3790 B3
1738 F6	2789 D1	3791 B2
2702 B3	2790 D1	3792 B2
2704 B2	2791 E9	3793 B3
2705 A5	2792 D9	3794 B7
2706 B3	2794 D6	3795 B8
2707 B2	2795 D6	3796 C7
2708 A2	2796 E6	3797 C8
2709 C5	2797 D9	3798 C5
2710 C4	2798 D9	5701 E3
2711 E1	3701 E5	5702 E2
2712 D4	3702 A5	5703 A3
2713 A5	3703 A5	5707 C1
2714 D3	3704 A5	5708 D1
2715 E3	3705 B2	5711 D4
2716 D3	3706 E5	5712 C4
2717 F3	3707 C5	5715 E9
2718 E2	3708 E5	5716 D9
2719 E4	3709 E4	5720 F7
2720 B2	3710 D3	5721 E8
2721 B1	3711 C4	5722 E6
2722 C1	3712 E2	5723 D6
2723 E6	3713 C5	5725 A9
2724 D1	3714 B4	6701 C5
2725 E8	3715 B5	6745 E1
2726 D2	3716 B5	7700 C3
2727 E2	3717 F3	7701 B5
2728 D2	3718 F3	7702 C8
2729 F2	3719 E9	7703 B5
2740 F8	3720 E6	7704 B4
2741 E7	3721 B1	7705 B5
2742 E7	3722 C1	7706 B5
2743 E7	3723 B1	7707 C4
2744 E8	3724 E1	7708 B9
2745 E8	3725 D2	9706 C4
2746 E8	3726 E1	9717 A4
2747 D9	3727 E4	
2748 E9	3728 F8	
2749 B8	3729 F7	
2750 C8	3730 E6	
2751 A8	3731 E9	
2753 B7	3732 E7	
2754 B7	3733 E7	
2755 C7	3734 D9	
2756 D6	3735 C9	
2757 D6	3736 D9	
2758 F7	3737 C9	
2759 E7	3738 C7	
2760 C6	3739 C6	
2761 C9	3740 B6	
2762 B7	3741 E7	
2763 B7	3742 D6	
2777 D1	3743 E3	
2778 B4	3744 E8	
2779 D1	3745 D1	
2780 D4	3746 C5	
2781 D6	3747 B9	
2782 D6	3748 A5	
2783 D9	3749 A6	
2784 E6	3750 F2	

Large Signal Panel: Tuner SIM Connector (Female)

A8 TUNER SIM CONNECTOR (FEMALE)

TUNER TEDE9 1200

TO 1510 A1 SUPPLY

TO 1000 B1 SIM CONN MALE

FROM EXTERNAL FM

TO COMPAIR CONNECTOR

AUTO SCAVEM

RESERVED

NC

PIP

MULTI MEDIA

PIP US

TO C 2437

TO 1940 F1 CRT

SIDE IO

3D COMB

ANTI MOIRE

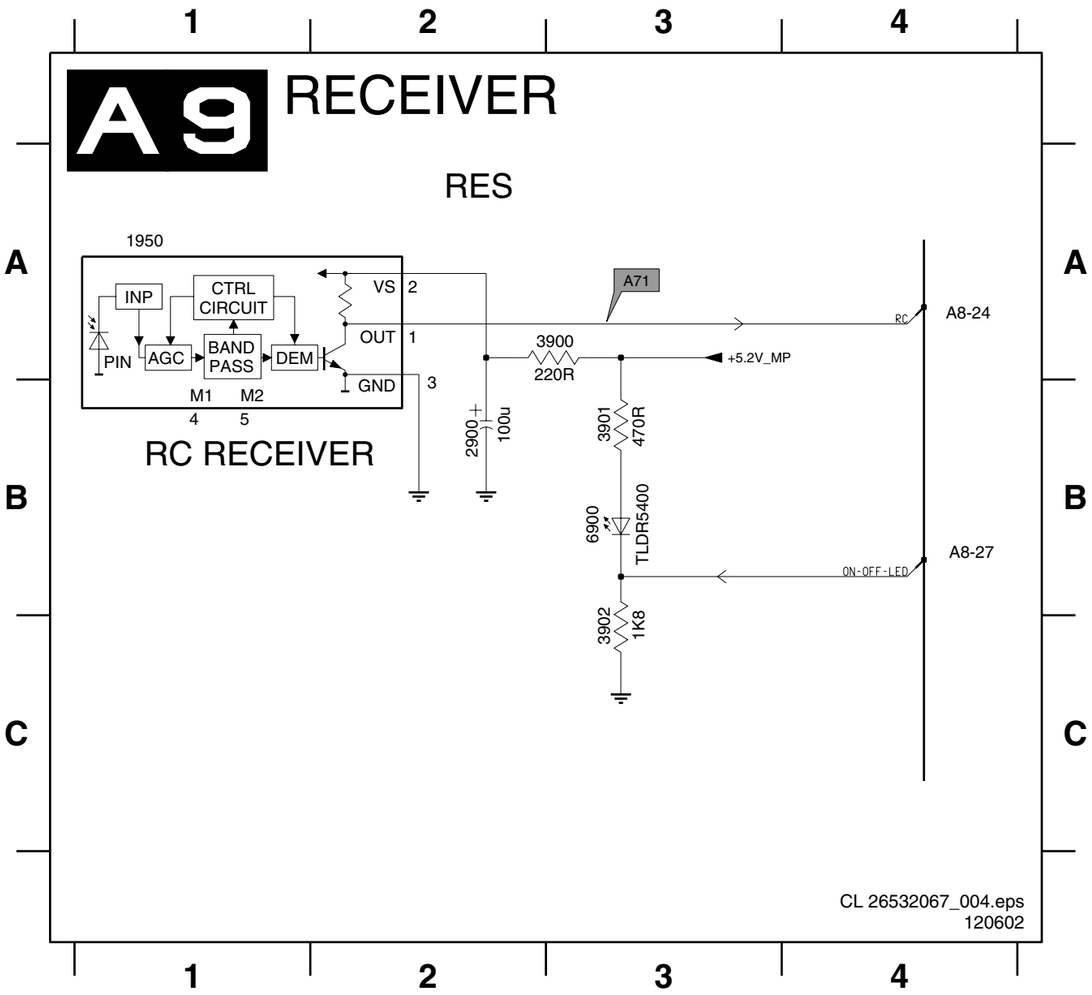
components with diversity

CL 26532067_003.eps 190602

1200 F2 9989 B6
1201 G1 9990 B5
1205 I2 9998 I13
1932 F9
1933 B6
1934 A6 c001 H1
1935 E9 c002 H1
1936 D6
1937 B13
1940 E6
1943 E4
1948 D13
1951 A13
1952 D9
1953 D9
1955 F4
1961 B9
1965 C6
1966 G9
1997 E3
2200 C2
2201 F1
2202 G2
2203 G2
2455 H7
2483 B9
2496 A7
2914 E2
2915 E1
2916 C4
2917 E12
2918 F11
2929 E10
2930 E8
2931 C8
2940 B3
2941 I8
2942 I8
2943 I8
2945 H13
2946 H13
2947 I7
2948 H12
2949 H12
2950 G3
2951 G2
3200 F3
3201 E3
3210 D10
3211 C10
3212 D11
3213 C11
3250 H3
3261 E4
3262 E4
3427 A7
3428 A8
3429 B8
3430 A8
3432 A8
3903 E11
3904 D1
3907 C1
3910 C1
3928 C4
3929 D3
3930 D3
3938 F10
3939 G10
3940 G11
3941 D2
3942 E11
3943 E11
3945 E11
3999 A3
5901 C2
5902 A1
5903 A1
5904 H8
6200 G2
6201 G3
6202 G3
6401 A8
6402 A9
7210 D10
7211 D11
7901 C3
7902 F11
7908 E11
7910 B2
7911 C1
7912 C1
9201 C12
9203 C12
9205 E8
9206 D8
9213 B11
9215 G2
9250 E6
9251 E6
9901 C12
9902 C12
9903 C12
9904 C12
9905 F8
9906 E3
9907 B11
9908 C3
9909 B1
9980 B1
9982 E6
9983 C11
9984 E12
9987 B6
9988 B6

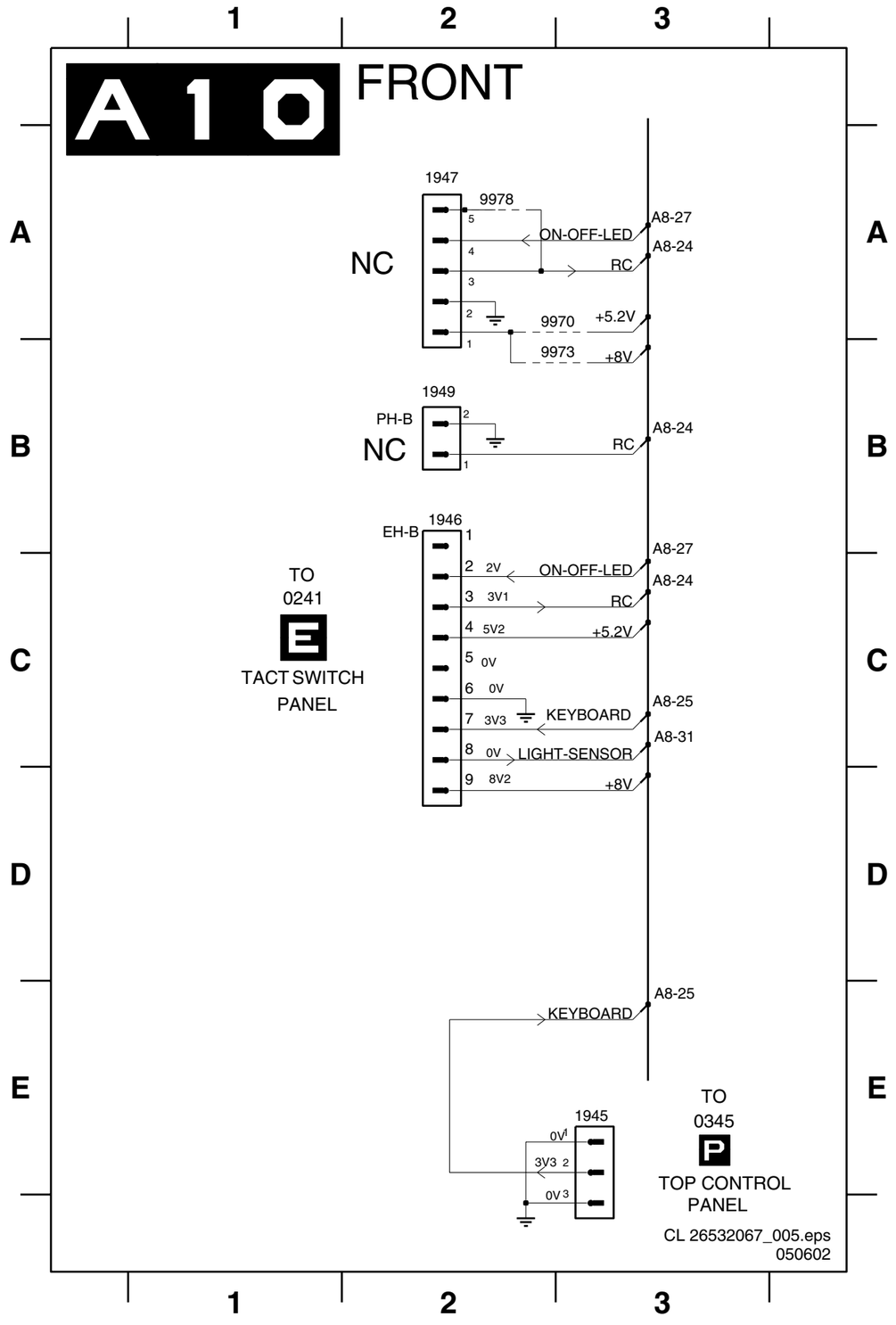
Large Signal Panel: Receiver

1950 A1 2900 B2 3900 A3 3901 B3 3902 C3 6900 B3



Large Signal Panel: Front

1945 E3
1946 B2
1947 A2
1949 B2
3999 E1
9970 A3
9973 B3



Large Signal Panel: Inputs/Outputs

A11 INPUTS/OUTPUTS

A11

SVHS-IN:

SEL-SVHS-RR_STATUS2 A8-69

C-SC2_SVHS-IN A8-70

Y_CVBS-SC2_AV2-IN A8-71

R-SC2_AV2-IN A8-64

L-SC2_AV2-IN A8-65

AV2:

AV1:

CVBS-SC1_AV1-IN A8-59

L-SC1_AV1-IN A8-55

R-SC1_AV1-IN A8-56

+8VS

÷ A8

SC1-G-IN_Y-IN A8-52

SC1-B-IN_U-IN A8-51

SC1-R_V-IN A8-53

AV2 OUT:

SC2-CVBS_MON-OUT A8-68

L-SC2-OUT A8-61

R-SC2-OUT A8-62

AUDIO-OUT

AUDIO-SL A8-73

L-CL_VL-OUT A8-74

R-CL_VL-OUT A8-72

YKC21-2675 1902-C

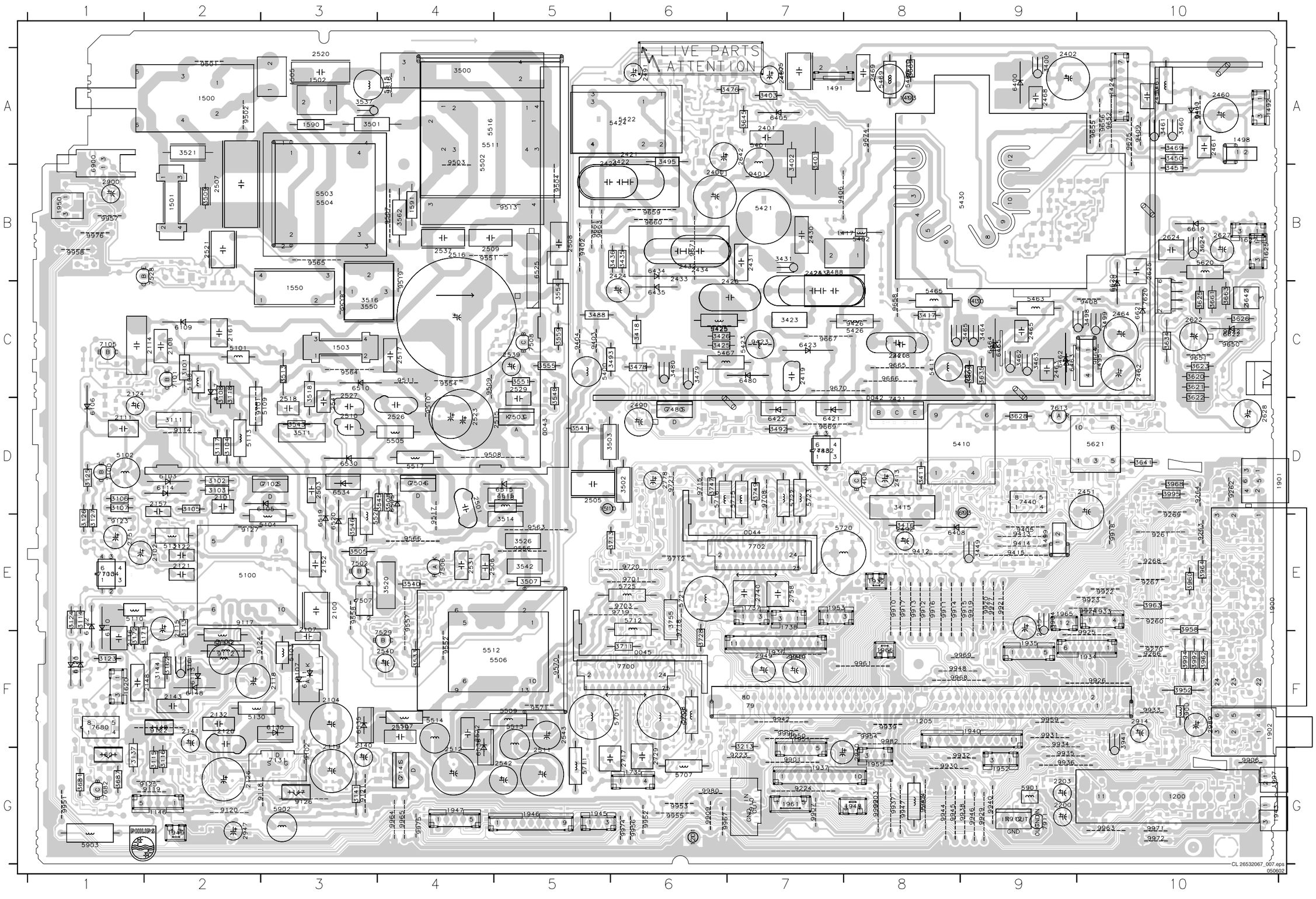
YKC21-2675 1902-B

YKC21-2675 1902-A

CL 26532067_006.eps
290502

1900-A B1	3961 D3
1900-B B1	3962 D2
1900-C B1	3963 E3
1900-D F1	3964 E2
1900-E F1	3965 F2
1900-F C1	3966 F2
1900-G D1	3967 B3
1900-H D1	3968 B2
1900-I E1	3969 B2
1900-J C9	3970 C2
1900-K B9	3971 C5
1900-L A9	3972 C5
1901 A1	3973 C6
1902-A F9	3974 C4
1902-B E9	3975 D5
1902-C D9	3976 D5
1980 F9	3977 C5
1981 E9	3978 D6
1982 D9	3979 A5
1983 C1	3980 A5
1984 B9	3981 A6
1987 A2	3982 A4
1988 A2	3983 B5
1989 C2	3984 B5
1990 B2	3985 B5
1991 B2	3986 B6
1992 F1	3987 D5
1993 F1	3988 D5
1994 E1	3989 D6
1995 D1	3990 E4
1996 D1	3991 E5
1998 C9	3992 E5
1999 B9	3993 E5
2985 F8	3994 E6
2986 E8	3995 A2
2987 D8	3996 A3
2988 A7	3997 D7
2989 A7	5900 A7
2991 B8	7990 E6
2992 C8	7991 E5
2993 F2	7992 A6
2994 F2	7993 A5
2995 D4	7994 C6
2996 A4	7995 C5
2997 E4	
2998 B2	
2999 C2	
3946 E7	
3947 E8	
3948 F7	
3949 F8	
3950 A1	
3951 D8	
3952 A8	
3953 B8	
3954 B7	
3955 C8	
3956 C7	
3957 C3	
3958 C2	
3959 D3	
3960 D2	

Layout Large Signal Panel (Top Side)



Large Signal Panel: Mapping Top Side

0042 C8
0043 C5
0044 E7
0045 F5
1146 G2
1147 G3
1148 F2
1200 G10
1201 G6
1205 F8
1417 B8
1424 A10
1430 C9
1491 A7
1492 A10
1493 A8
1495 C10
1498 A10
1499 D9
1500 A2
1501 B2
1502 A3
1503 C3
1505 A3
1510 D5
1550 B3
1590 A3
1591 B4
1601 G1
1620 F1
1625 B10
1627 B10
1693 D9
1735 G5
1737 F7
1738 F7
1900 E10
1902 F10
1932 E8
1933 E10
1934 F10
1935 F9
1936 F7
1937 G7
1940 F9
1943 G10
1945 G5
1946 G5
1947 G4
1948 G8
1949 G2
1950 B1
1951 G7
1952 G9
1953 E7
1955 G8
1961 G7
1965 E9
1966 F8
1997 G10
2100 E3
2101 D2
2102 E2
2104 F3
2107 F3
2108 C2
2111 D1
2114 C1
2115 E2
2116 E1
2118 F2
2119 F3
2120 G2
2121 E2
2122 E2
2124 C1
2126 G2
2132 F2
2140 G4
2141 G2
2143 F2
2148 F1
2151 E1
2152 E3
2157 E2
2161 C2
2200 G9
2203 G9
2400 B6
2401 A7
2402 A10
2405 A7
2413 D8
2418 C8
2419 C7
2420 C8
2421 B6
2422 A5
2423 A6
2424 C5
2425 C7
2426 C6
2430 B7
2431 B7
2432 B6
2433 B6
2434 B6
2435 C8
2450 A10
2451 D10
2460 A10
2461 A10
2462 C10
2463 C9
2464 C10
2465 C9
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2469 A8
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2488 C8
2490 D6
2491 A6
2492 E8
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2503 D3
2505 D5
2506 E5
2507 A2
2508 B5
2509 B4
2510 D3
2511 G5
2512 G4
2515 D5
2516 B4
2517 C4
2518 D3
2519 F4
2520 A3
2521 B2
2522 F4
2523 D4
2526 D4
2527 C3
2529 C5
2531 E4
2537 B4
2539 C5
2540 F4
2541 C3
2542 G4
2543 G5
2622 C10
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2625 B10
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2740 E7
2758 E7
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2949 F7
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3116 G2
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3124 E1
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3126 E1
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3141 G3
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3402 A7
3403 A7
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3417 C8
3418 C6
3423 C7
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3426 C6
3431 B7
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3436 B5
3449 E9
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3451 B10
3460 A10
3461 A10
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3463 C9
3464 C9
3465 C9
3469 A10
3476 A7
3478 C6
3479 C6
3480 C6
3488 C5
3492 D7
3493 C6
3495 A6
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3499 C10
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3503 D5
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3513 C3
3514 E4
3515 D5
3516 B4
3518 C3
3520 E4
3521 A2
3526 E5
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3537 A3
3540 E4
3541 D5
3542 E5
3543 D3
3545 D3
3546 D3
3548 C5
3550 B4
3551 C5
3554 C5
3555 C5
3559 C5
3562 B4
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3621 C10
3622 C10
3623 C10
3624 B10
3625 C10
3626 C10
3628 D9
3634 C10
3635 C9
3641 D10
3642 B10
3645 A7
3661 C10
3663 C10
3681 G1
3687 G1
3689 A8
3711 F6
3713 E6
3728 F6
3747 E6
3749 D7
3755 E6
3904 E9
3941 F10
3952 F10
3958 E10
3960 E10
3962 F10
3963 E10
3964 E10
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3994 F10
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5103 F3
5104 E2
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5422 A6
5423 C7
5424 A6
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5512 E5
5513 F5
5514 F4
5515 A3
5516 A5
5517 D4
5518 D5
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5620 B10
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5712 F6
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6435 C6
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6463 C9
6464 C9
6465 C9
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6515 D5
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9411 A10
9412 E8
9413 E9
9414 E9
9415 E9
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9425 C6
9426 C8
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9503 B4
9504 B5
9505 G4
9507 B4
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9509 C4
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9701 E6
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9721 D6
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9902 G8
9903 G8
9906 G10
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9909 G6
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9913 E8
9914 E8
9915 E9
9916 E8
9917 E8
9918 E10
9919 E9
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9922 E10
9923 E10
9924 E10
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9926 F10
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9933 F10
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9935 G9
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9937 G8
9938 G9
9939 F8
9940 G9
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9944 G8
9945 G8
9946 G9
9947 G8
9948 F8
9949 F7
9950 F7
9951 G1
9952 G6
9953 G6
9954 F8
9955 G6
9956 G6
9957 B1
9958 B1
9959 F9
9961 F8
9963 G10
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9968 F8
9969 F9
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9972 G10
9974 G6
9975 G4
9976 B1
9977 E9
9980 G6
9982 F8
9996 F7

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Large Signal Panel: Mapping Bottom Side

2103 D9
2105 D9
2106 G9
2109 F10
2110 C10
2112 C9
2123 C10
2130 G8
2131 G9
2144 C10
2145 C9
2147 G8
2149 F10
2150 G9
2153 E10
2154 F9
2155 E9
2156 E9
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2160 D9
2162 G9
2201 G1
2202 G1
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2404 D2
2409 D3
2412 D3
2414 D3
2415 D3
2417 C3
2440 D2
2441 B2
2442 B2
2443 B2
2444 B1
2445 B1
2448 A5
2454 E2
2455 F3
2457 D1
2458 E3
2466 A5
2480 C5
2481 C5
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2483 F2
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2494 B3
2495 B4
2496 F2
2497 A5
2498 A5
2499 A5
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2504 D8
2513 E7
2514 E7
2524 E7
2525 E8
2528 B9
2530 E8
2532 F7
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2535 D6
2538 E7
2544 D7
2545 C6
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2604 C1
2605 D1
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2621 C1
2623 D2
2629 B1
2630 D1
2631 D1
2633 C1
2635 D2
2653 C1
2656 D2
2657 D2
2659 D2
2660 A5
2661 C1
2662 E2
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2704 E5
2705 D5
2706 F5
2707 F5
2708 F5
2709 F6
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2712 F6
2713 D5
2714 F6
2715 F6
2716 F5
2718 F5
2719 G6
2720 F5
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2725 E5
2726 F5
2727 F5
2728 F5
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2743 E4
2744 E5
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2746 E5
2747 E4
2748 D5
2749 D5
2750 E4
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2789 F5
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2791 E5
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2796 E4
2797 E4
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2918 F1
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2930 F2
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2941 F3
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3151 G9
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3168 F10
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3442 D2
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3447 B2
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3456 D2
3457 D2
3458 E3
3459 E3
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3481 D5
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3486 D2
3487 E2
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3510 E7
3512 D7
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3519 E7
3522 E7
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3525 E7
3527 E6
3528 B9
3529 B9
3530 E7
3531 E7
3532 B9
3534 B9
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3547 D7
3549 E6
3552 D7
3553 D7
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3558 C6
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3629 B1
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3631 D1
3632 D1
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3640 D1
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3685 G10
3686 G10
3688 C5
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3705 F5
3706 F5
3707 F5
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3712 F5
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3730 D4
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3959 E1
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3966 E1
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3993 F1
3996 D1
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6457 E2
6458 E2
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7612 C1
7614 D1
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7995 E1
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9129 D10
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9212 G2
9213 G4
9214 G2
9215 G2
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9219 F1
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9275 F1
9276 F1
9277 D1
9278 D1
9279 D1
9280 E1
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9284 E1
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9289 F1
9291 F1
9293 D1
9294 D1
9295 D1
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9422 E3
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9427 E2
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9429 E2
9430 E2
9431 D2
9432 E2
9433 D3
9434 D2
9435 D1
9436 D2
9437 E3
9438 C1
9440 G10
9441 D1
9443 D3
9481 E2
9482 D4
9483 D4
9499 A5
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9560 D7
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9567 E7
9621 G10
9624 D5
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9677 D1
9702 E5
9705 F5
9706 E6
9707 E5
9709 F5
9711 D5
9713 D5
9714 F6
9716 F6
9717 F5
9904 G3
9905 E3
9908 G1
9927 E3
9928 F4
9960 G6
9962 G6
9966 G7
9970 G7
9973 G7
9978 G7
9979 G7
9981 G2
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9985 E1
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9987 F2
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9998 F4

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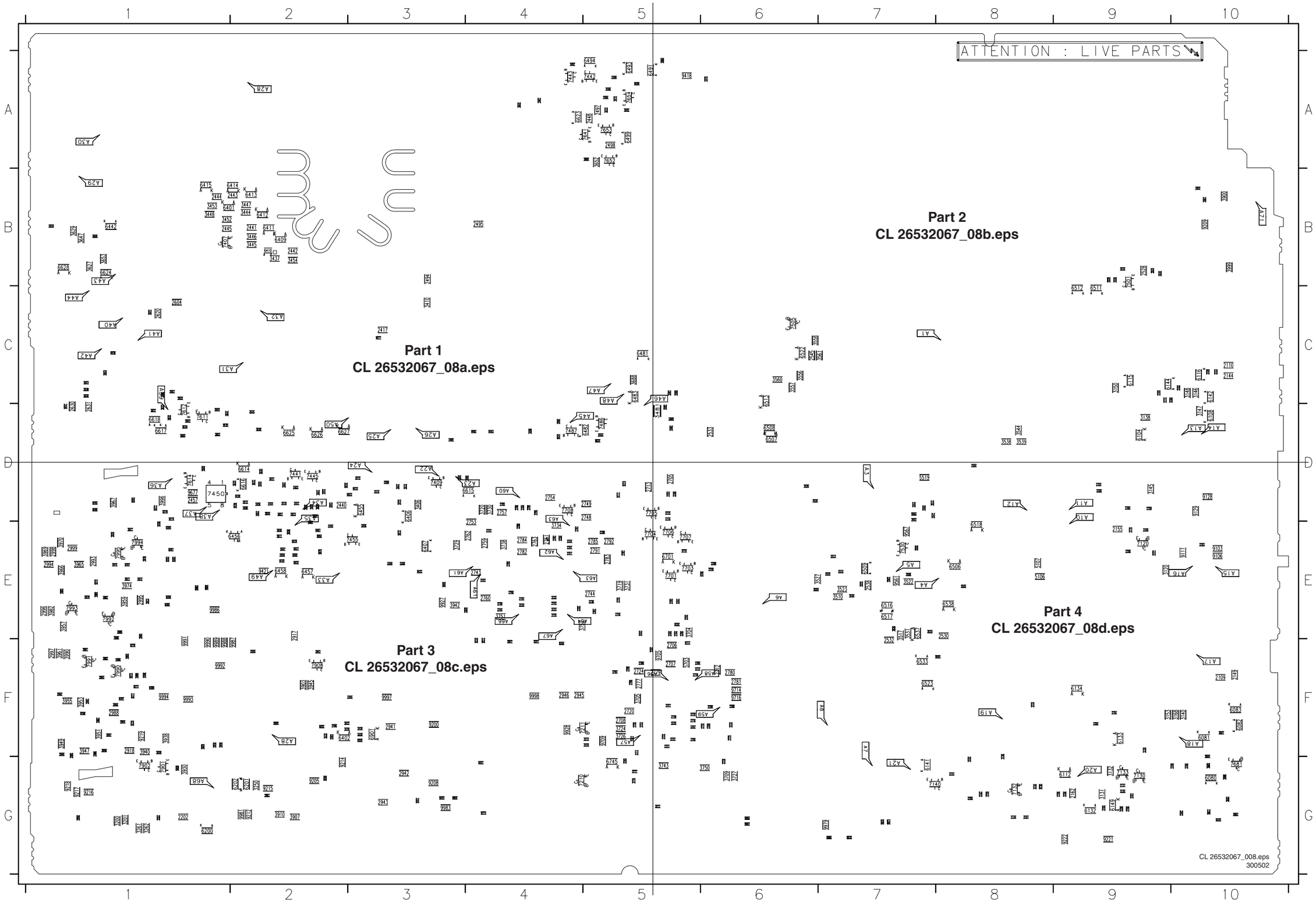
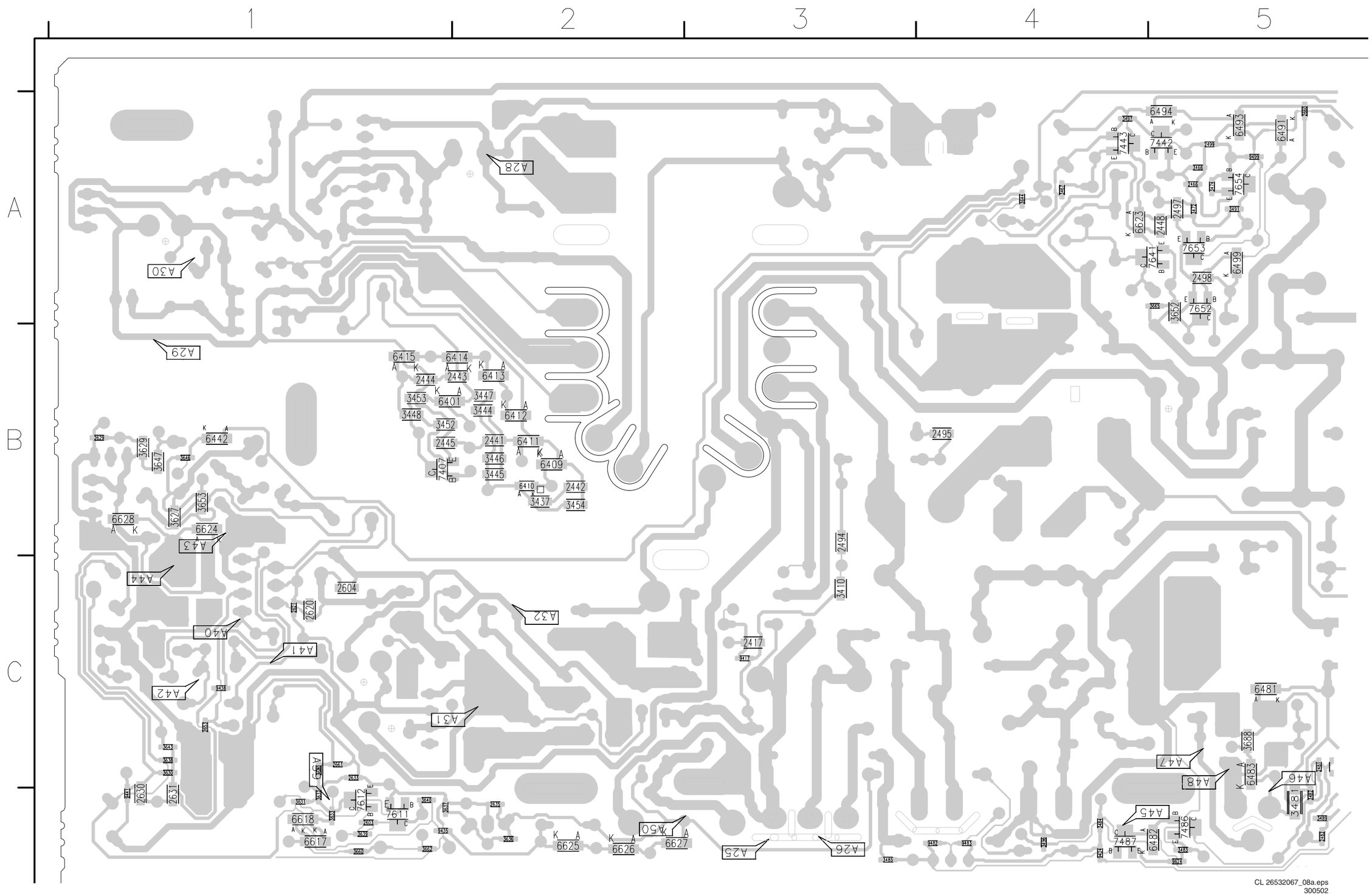
Layout Large Signal Panel (Overview Bottom Side)



Layout Large Signal Panel (Part 1 Bottom Side)



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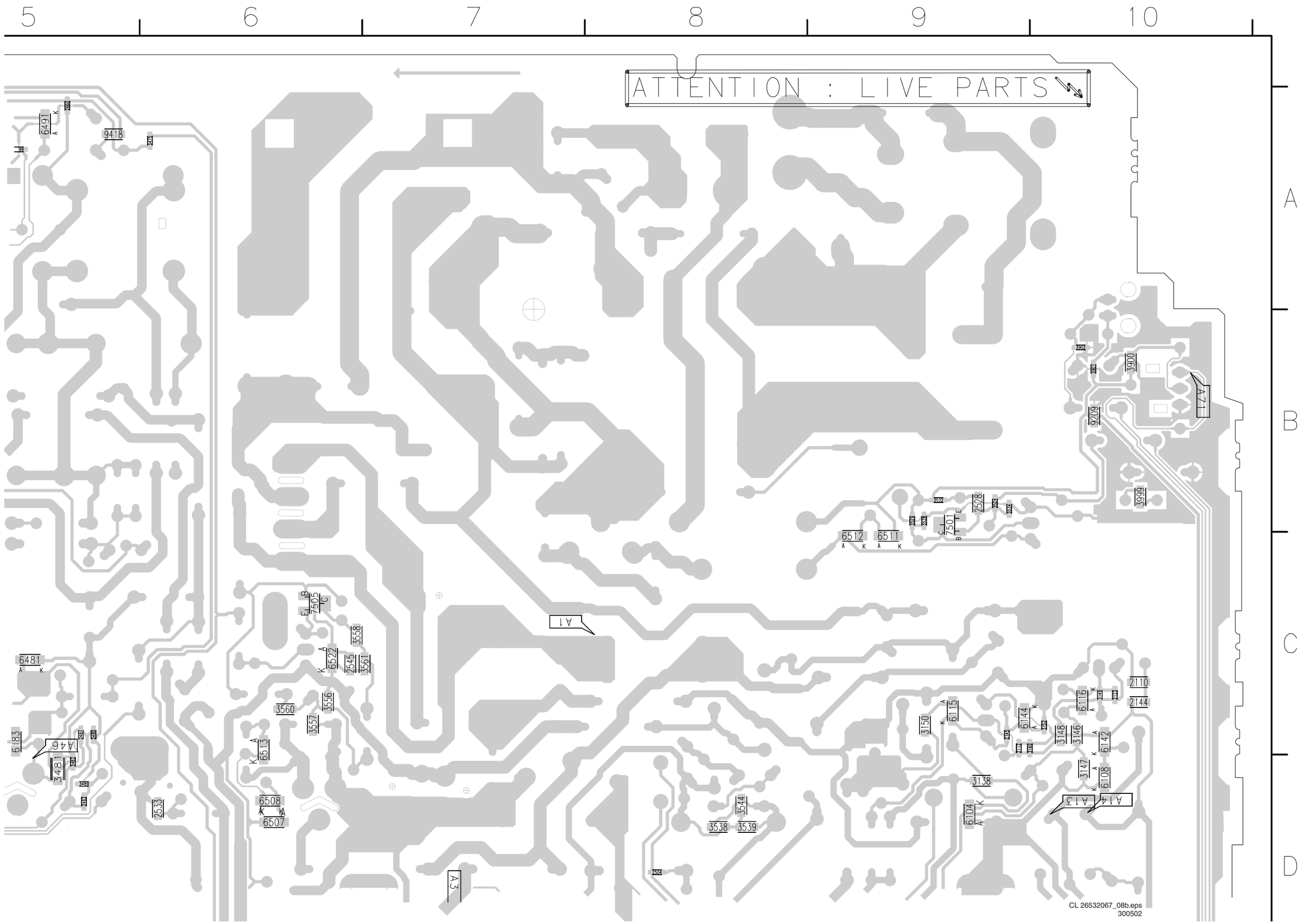
Layout Large Signal Panel (Part 2 Bottom Side)



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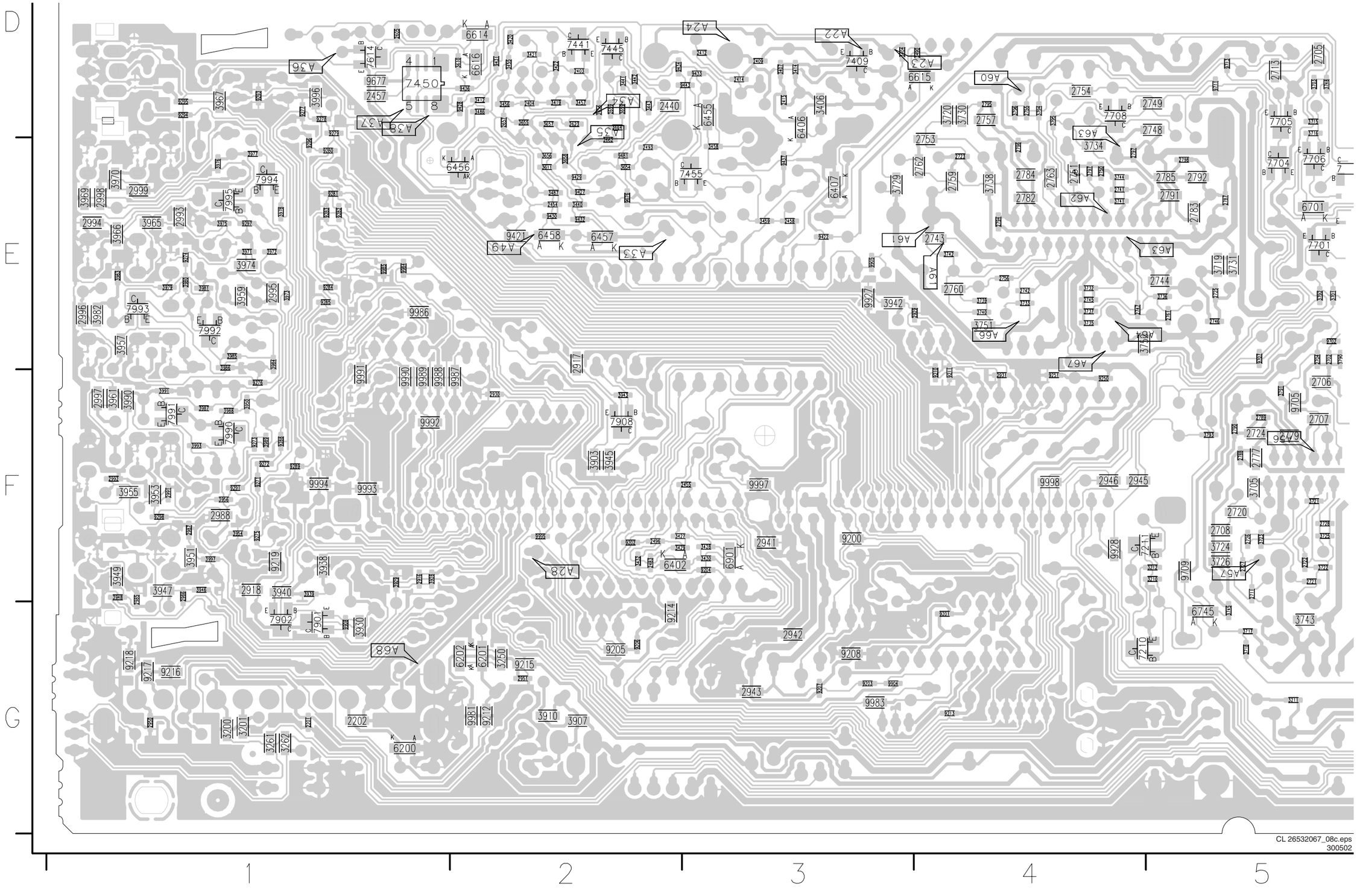
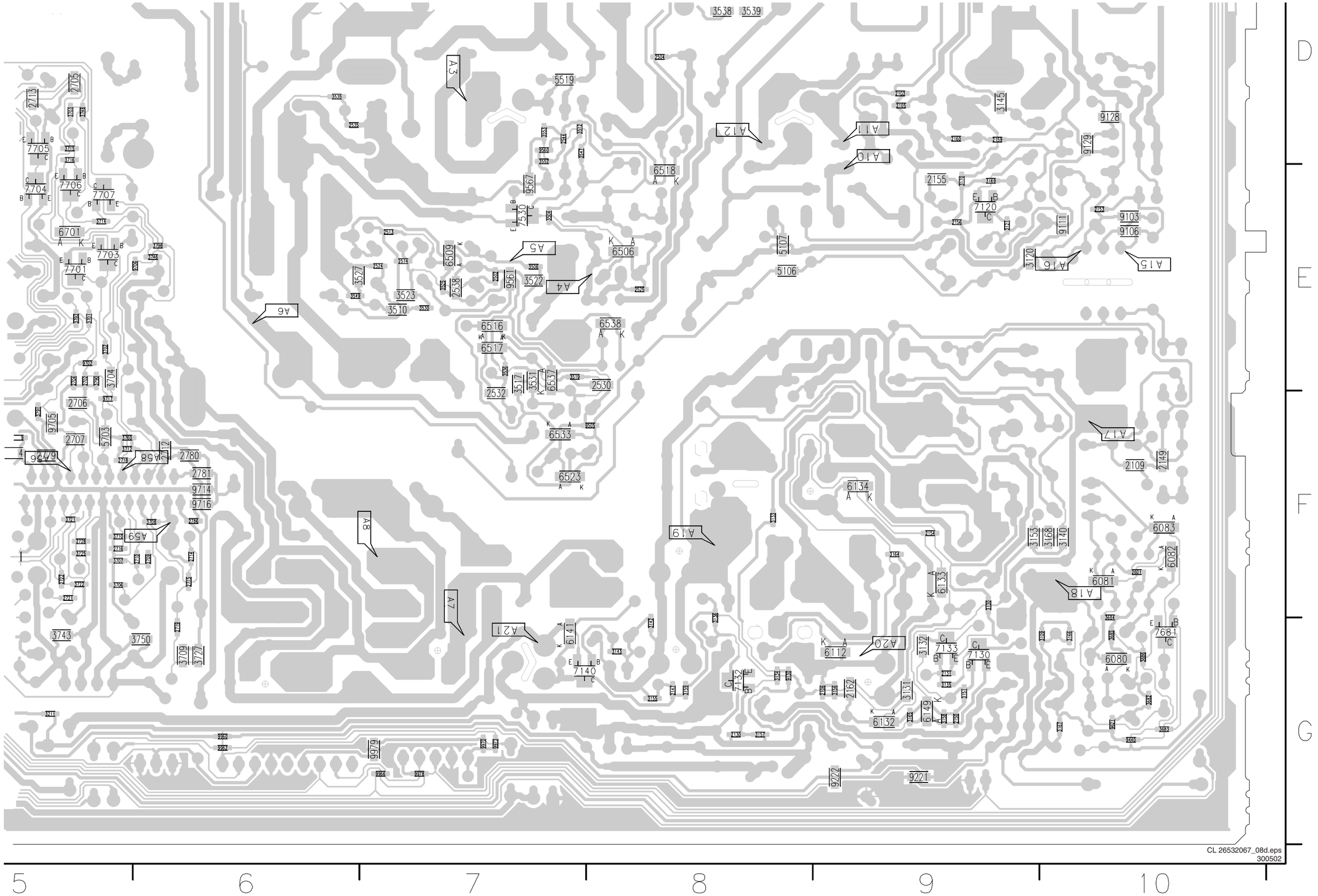
Layout Large Signal Panel (Part 3 Bottom Side)

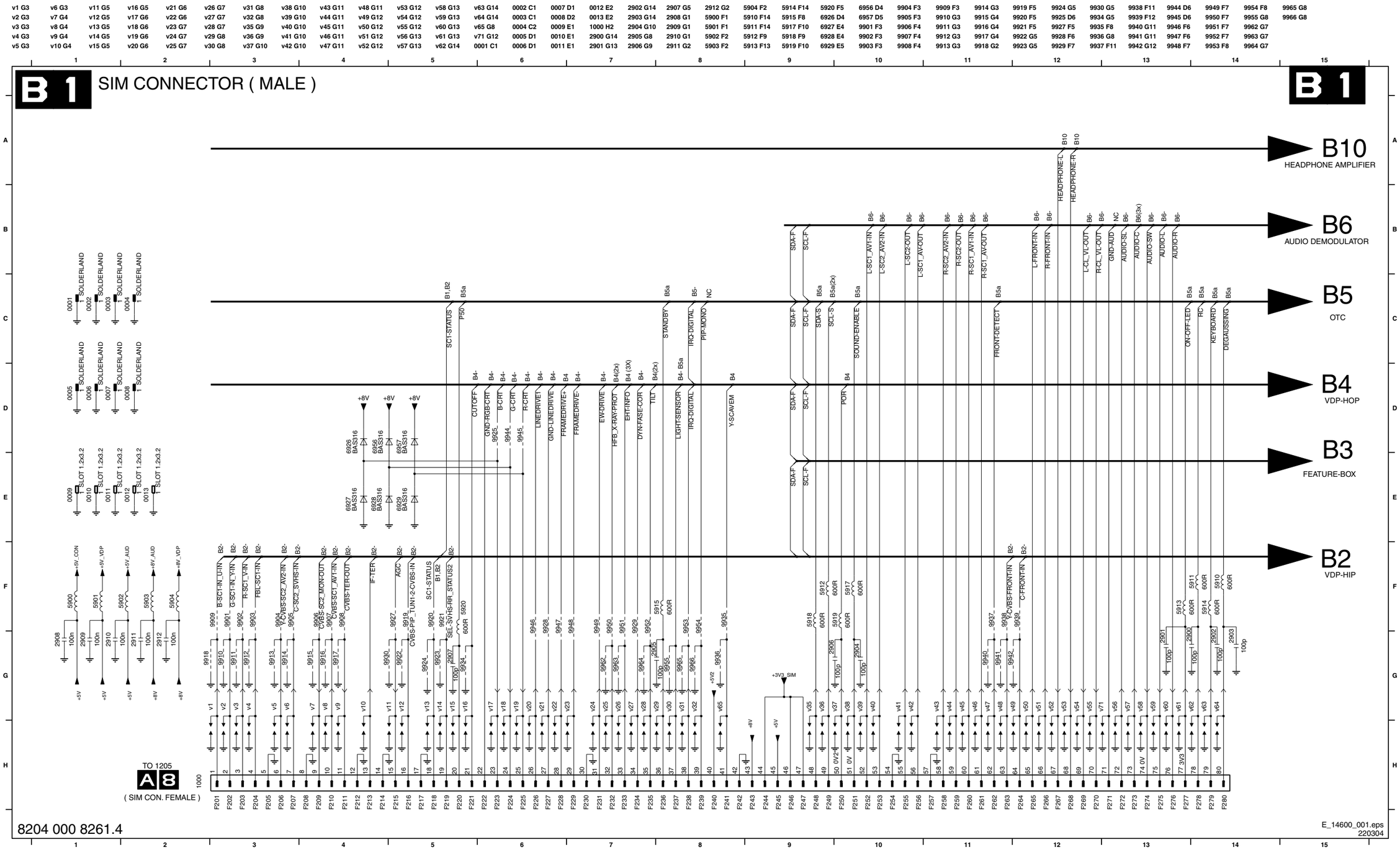


CL 26532067_08c.eps
300502

Layout Large Signal Panel (Part 4 Bottom Side)



Small Signal Board: SIM Connector (Male)



Small Signal Board: IF. I/O Video Processing

B2 IF,I/O VIDEOPROCESSING

B2

HIP

SUPPLY

CTRL

SYNC

IF DEM

GROUP DELAY COR.

I/O SWITCH

LUMA & CHROMA PROC.

OUTP SWITCH

7323 TDA9320H

MODULATOR COIL

SAW-FILTER AUDIO 1409-A OFWK3953L

SAW-FILTER-VIDEO 1410-A OFWK9656L

SAW-FILTER VIDEO 1408-A OFWK3953L

1409-B OFWK3953L

1410-B OFWK9656L

1408-B OFWK3953L

COIL 40.4 SUPPRESSION

7307 TDA9181

INPSEL

Y|CVBS1

Y|CVBS2

CIN

SC

CLAMP

CLAMP

2H/4H DELAY

ADAPTIVE COMB FILTER

SAND-CASTLE

FILTER TUNING

CLOCK GEN

N.C.

B→

8204 000 8260.5

E_14600_002.eps 300304

1303 B13	3409 G2	F415 H8	
1305 E11	3410 E3	F416 C1	
1306 E12	3411 C2	F417 F8	
1307 E12	3412 E12	F418 G8	
1308 E13	3413 F9	F419 B7	
1403 A1	3414 D2	F420 B7	
1406 E5	3415 A5	F421 B8	
1407 E5	3416 D5	F422 B8	
1408-A F4	3417 G5	F423 H9	
1408-B G3	3418 C7	F424 E14	
1409-A B4	3419 D5	F425 F14	
1409-B C3	3420 G6	F426 F14	
1410-A E4	3421 F5	F427 F14	
1410-B E3	3422 G9	F428 F13	
1411 G6	3423 H1	F430 H14	
2302 H14	3433 G1	F431 H14	
2305 C11	3434 E2	F432 H12	
2316 C11	3435 G5	F433 H11	
2322 C11	3436 E6	F434 G11	
2327 D12	3437 D7	F435 H11	
2335 G9	3439 E6	F436 D6	
2337 G9	3441 B5	F437 C1	
2339 H8	3444 B11	F438 B2	
2350 A11	3445 F6	F439 E6	
2351 A11	3446 G8	F440 B8	
2352 A11	3447 B11	c002 A8	
2353 I12	3448 B12		
2354 G12	3449 B12		
2355 C12	3450 E14		
2356 F11	3451 F14		
2357 F11	3452 F14		
2358 F11	3456 G5		
2359 F11	3457 H5		
2360 F12	3460 D13		
2361 F13	3461 D14		
2362 F13	3462 D14		
2364 C12	3463 B5		
2365 F7	3468 H11		
2366 F8	3473 F7		
2367 F8	3474 F6		
2368 F8	3475 C11		
2369 F8	5309 B14		
2370 F8	5310 B14		
2371 B10	5311 B14		
2372 A10	5312 F14		
2373 B8	5401 D3		
2374 B8	5402 E5		
2375 B8	5403 H2		
2376 B7	5404 B7		
2377 B6	5405 B7		
2378 B7	5406 E6		
2379 F12	5408 C6		
2380 F12	5409 H8		
2381 F12	5411 C1		
2382 F12	5415 A2		
2383 D12	5416 A3		
2384 F7	5417 G7		
2385 G13	6402 E2		
2387 H8	6403 D2		
2388 A11	6404 G2		
2389 B12	6405 E2		
2390 B1	7307 G11		
2391 B3	7320 F9		
2394 B6	7322 E7		
2399 F7	7323 D9		
2401 C6	7401 E2		
2402 G7	7402 H7		
2403 C7	7403 D2		
2404 C7	7404 D12		
2405 D1	7405 H1		
2406 G2	7406 F5		
2407 G3	7407 F5		
2408 H3	7408 A12		
2409 C7	7409 A12		
2411 C6	7410 G5		
2412 C1	7411 D6		
2413 D5	7412 F14		
2417 E7	7413 D13		
2418 D7	9318 G11		
2419 D7	9319 G11		
2420 F8	9322 F8		
2421 F14	9324 G11		
2422 E13	9401 F3		
2423 F14	9402 E3		
2424 G11	9403 E2		
2425 B1	9405 E2		
2426 C13	9406 F13		
2427 C14	9407 A4		
2428 C14	9408 H7		
2430 F9	9410 A4		
3301 I12	9412 F6		
3303 H10	9413 F6		
3370 F9	9414 E7		
3371 H9	9415 C3		
3372 H9	9416 D5		
3373 C12	9417 D6		
3374 C12	9418 E5		
3375 C12	9419 E7		
3376 A10	9420 F6		
3377 A10	F354 B14		
3378 B10	F355 B14		
3379 D11	F356 B14		
3380 B7	F400 G3		
3381 H8	F401 D7		
3382 F7	F402 C7		
3385 G7	F403 C7		
3389 F9	F404 E12		
3393 F11	F405 D11		
3400 B6	F406 D12		
3401 B7	F407 B10		
3402 B1	F408 B11		
3403 G7	F409 C5		
3404 I6	F410 C5		
3405 H5	F411 C4		
3406 G2	F412 C4		
3407 F2	F413 B6		
3408 B5	F414 D5		

Small Signal Board: PICNIC

B3A PICNIC

B3A

FBX SOFTWARE

PROM

MICRO-PROCESSOR PSP

7713 PICNIC SAA4978H

3 X DAC

3 X ADC

ANALOG PROCESSING

FRONT END

BACK END

PEAKING

MUX

MID END

HISTOGRAM

NOISE REDUCTION

TBC/SRC

MUX

PLL

OSC

BST

FM1

DUAL FIFO (262,214 x 8) x 2

TO B3c

TO B3c

B3

B

B3b,c,d

B3D

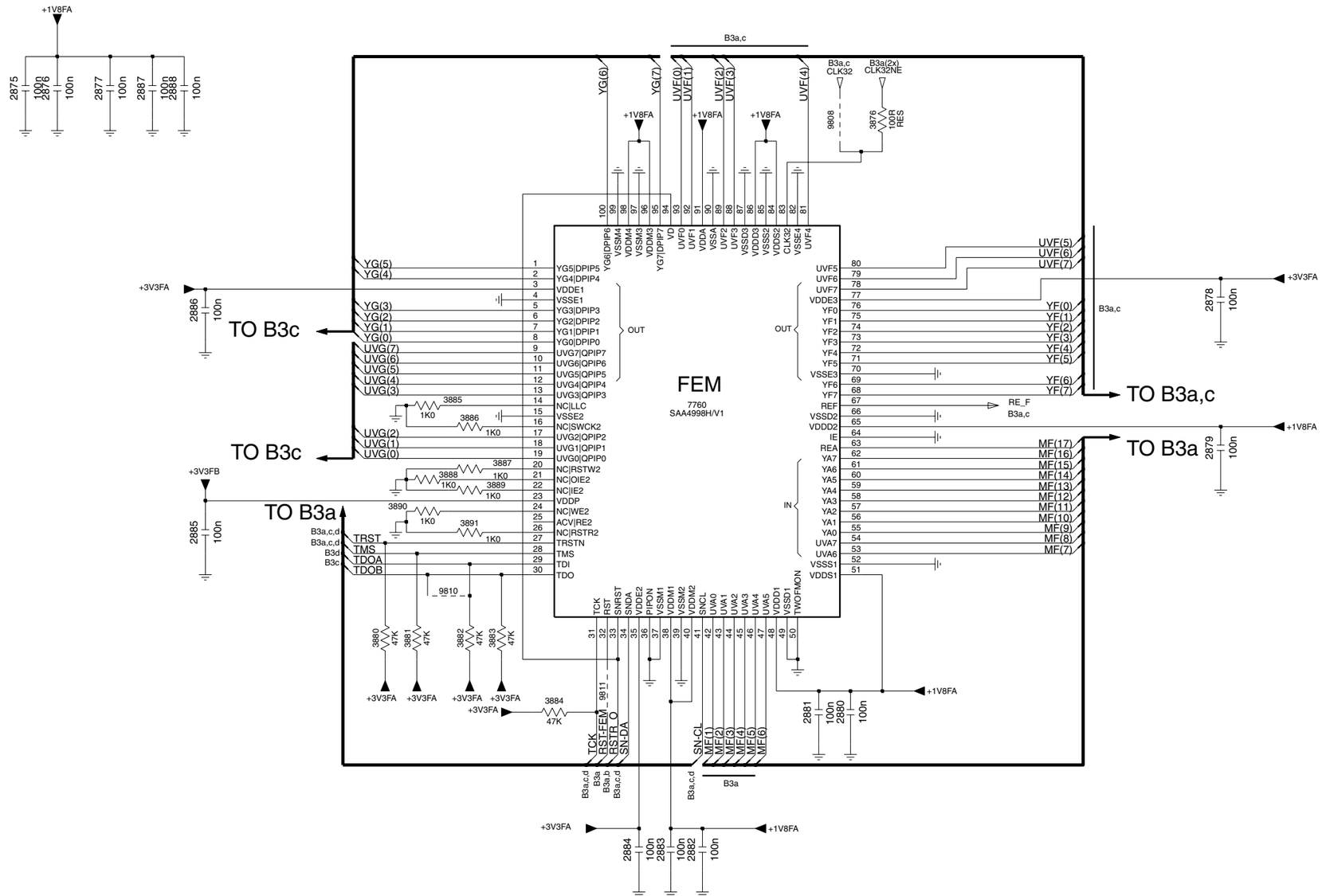
8204 000 8308.6

E_14600_003.eps 300304

0018 J18	3760 D15	F166 J5	
0019 K18	3761 A14	F706 B6	
1702 K6	3821 I4	F707 C6	
1703 K6	3826 I3	F708 C6	
1710 L5	3827 I4	F709 D5	
2700 B3	3828 I4	F710 K6	
2701 B3	3829 I4	F784 E7	
2702 B4	3852 H4	F785 F7	
2703 C3	3877 H3	F786 E8	
2704 C3	3878 J4	F787 E8	
2705 C4	3879 J4	F788 G7	
2706 D3	3892 J3	I720 A4	
2707 D3	3893 J4	I721 B4	
2708 D4	3903 C5	I722 C3	
2709 A8	3904 E5	I723 C4	
2710 C17	3905 E6	I724 C3	
2711 C17	5700 B3	I725 C4	
2712 C15	5701 C3	I726 D3	
2713 G2	5702 D3	I727 G6	
2714 G3	5703 A8		
2716 C16	5705 I6		
2717 C15	5706 H4		
2718 H3	5707 I5		
2719 J3	5708 I4		
2720 J3	5710 C8		
2721 K3	5711 D7		
2722 L3	5712 E6		
2723 E3	5714 G6		
2724 E3	7703 D3		
2725 C16	7705 A6		
2726 F13	7706 A7		
2727 E11	7707 D5		
2731 E9	7708 B6		
2732 C7	7709 C5		
2733 I14	7710 D6		
2734 K14	7711 C8		
2735 L9	7712 E7		
2736 L10	7713 I9		
2737 J6	7714 C16		
2738 C18	7715 G6		
2740 H5	7734 J4		
2741 I5	7735 I4		
2742 I5	7736 H3		
2743 C6	9700 B7		
2744 C6	9701 F6		
2745 C8	9702 E6		
2746 D8	9703 G7		
2747 G5	9706 K6		
2748 E6	9707-A J14		
2749 H6	9707-B J14		
2754 D8	9707-C J14		
2757 I7	9707-D J14		
2800 I6	9708-A I14		
2804 J6	9708-B I14		
2806 G6	9708-C I14		
2807 K7	9708-D J14		
2915 I5	9709-A H14		
2916 I5	9709-B H14		
2917 A7	9709-C I14		
2918 A7	9709-D I14		
2920 J7	9710-A H14		
2922 I4	9710-B H14		
2923 H4	9710-C H14		
2926 J4	9710-D H14		
2929 K6	9711 H14		
2930 H4	9713 H3		
2931 H5	9714 I4		
2932 I5	9715 J4		
2933 I4	9725 D4		
2935 K5	9726 F4		
3700 K14	9727 D18		
3701 L6	9728 D15		
3702 E11	9729 A4		
3703 B3	9730 C8		
3704 C4	9731 C7		
3705 C4	9732 C7		
3706 B4	9733 C7		
3707 C4	9734 E5		
3708 D4	9735 E5		
3709 F3	9736 B3		
3710 F3	9737 C3		
3711 E11	9738 D3		
3712 L7	9739 E3		
3713 G2	9809 B5		
3714 I3	F100 B2		
3715 J3	F101 C2		
3716 H3	F102 D2		
3717 J3	F103 B3		
3718 J3	F104 D3		
3719 G5	F105 E3		
3720 H5	F107 A8		
3721 H3	F108 G2		
3722 E3	F109 I2		
3723 K6	F110 J2		
3724 H18	F112 K3		
3725 K4	F114 F3		
3726 L3	F115 F3		
3727 K4	F118 I7		
3728 K3	F119 K3		
3729 D3	F120 D3		
3730 K3	F122 L6		
3731 E3	F123 L6		
3732 A6	F124 L6		
3733 D4	F125 L6		
3734 E4	F126 L6		
3735 E4	F127 M6		
3736 C5	F128 F6		
3737 C6	F129 F6		
3738 C5	F139 K14		
3739 D5	F140 K14		
3740 A6	F145 B6		
3741 D5	F148 G14		
3742 D6	F149 G14		
3743 D6	F150 H14		
3746 C6	F151 F10		
3747 C5	F152 L7		
3748 B5	F155 G6		
3749 C4	F156 G6		
3750 D6	F157 B4		
3751 B6	F158 C4		
3752 B7	F159 D4		
3753 C6	F160 I7		
3754 C6	F161 I7		
3755 D5	F162 H5		
3756 D5	F163 I5		
3758 F7	F164 J5		
3759 I6	F165 J5		

Small Signal Board: FEM Falconic Embedded Memory

FEM
FALCONIC EMBEDDED MEMORY



8204 000 8308.6

E_14600_004.eps
300304

2875 B1
2876 B1
2877 B2
2878 D9
2879 E9
2880 G7
2881 G6
2882 H6
2883 H5
2884 H5
2885 E2
2886 D2
2887 B2
2888 B2
3876 C7
3880 F3
3881 F4
3882 F4
3883 F4
3884 G5
3885 E4
3886 E4
3887 E4
3888 E4
3889 E4
3890 E4
3891 E4
7760 E6
9808 C6
9810 F4
9811 G5

Small Signal Board: Eagle

B3C EAGLE

B3C

EAGLE1C 7720

EAGLE - IC

VIDEO ENHANCEMENT PROCESSOR

DRAM 512K X 16 X 2 MSM56V16160F-6TS 7719

CY2305SC-1 7702

PMBT2369 7717 7718 7725

BFS20 7728 7729 7730 7731 7732 7733

8204 000 8308.6

E_14600_005.eps 171204

2750 A2	3797 F8	I731 E1
2751 A3	3798 F1	I732 E1
2752 A3	3799 F1	I733 F1
2753 A3	3800 D7	I734 B7
2755 A3	3801 D7	I735 H5
2756 A3	3802 D8	I736 H10
2758 H12	3803 C13	I737 I9
2759 A3	3804 C13	I738 I11
2760 A5	3805 I10	I739 I6
2761 A5	3806 I12	I740 I9
2762 A5	3807 I6	
2763 A5	3808 I8	
2764 A5	3809 I11	
2765 I6	3810 I6	
2766 I7	3811 I7	
2767 I6	3812 I8	
2768 A3	3813 I8	
2769 A3	3814 I10	
2770 A3	3815 I10	
2771 A4	3816 I11	
2772 A4	3817 I12	
2773 A4	3818 I13	
2774 I12	3819 H1	
2775 I12	3820 H1	
2776 I11	3822 A8	
2777 A4	3823 A8	
2778 A4	3824 A8	
2779 I9	3825 B8	
2780 A4	3850 H5	
2781 A4	3856 E11	
2782 A4	3857 F10	
2783 H11	3858 F11	
2784 A4	3859 F12	
2785 A4	3860 F12	
2786 D7	3894 E7	
2787 D8	3900 G6	
2788 E2	3901 G6	
2789 E1	3902 G7	
2790 E2	3906 C11	
2791 E1	3911-1 G6	
2793 E1	3911-2 G7	
2794 A3	3911-3 G6	
2795 A4	3911-4 F7	
2796 A4	3912-1 G6	
2797 A4	3912-2 G7	
2798 A4	3912-3 F7	
2799 A4	3912-4 F6	
2801 I9	3918 F7	
2803 H6	3919 F6	
2805 A3	3920 G7	
2808 A3	3921 G6	
2809 A3	5715 I7	
2812 H10	5716 I9	
2813 H9	5717 I12	
2814 H12	5718 H12	
2815 I7	7702 E11	
2816 I9	7717 C8	
2818 I12	7718 C9	
2821 A5	7719 A11	
2822 A5	7720 B2	
2823 E8	7725 G9	
2824 E2	7728 H6	
2825 D8	7729 H8	
2827 E8	7730 H11	
2830 A11	7731 I5	
2831 A11	7732 I8	
2832 A11	7733 I10	
2833 A12	9704 H1	
2834 A12	9705 H1	
2835 A12	9712 E1	
2838 I7	9716 G12	
2839 E12	9717 F13	
2840 F10	9718 F13	
2842 I9	9721 F13	
2925 H6	9723 F1	
2928 E10	9740 F1	
2936 D11	9750 C7	
2937 F12	9751 C9	
2938 F12	9752 C10	
2940 F13	9753 D6	
3744 F9	9754 D6	
3745 G9	9755 E2	
3757 E8	9756 E1	
3762 B13	9757 E2	
3763 B13	9758 E1	
3764 B13	9759 E6	
3765 C9	9760 E6	
3766 C8	9761 E6	
3767 B13	9762 F6	
3768 B13	9763 F1	
3769 B13	9764 F7	
3770 B13	9765 F1	
3771 C6	9766 F1	
3772 C7	9767 I11	
3773 C7	9768 I9	
3774 B13	9773 F6	
3775 C13	9774 F6	
3776 D6	9775 F6	
3777 C13	F714 C7	
3778 C10	F715 C8	
3779 C13	F718 E8	
3780 C13	F720 G9	
3781 C13	F729 I6	
3782 D8	F731 I11	
3783 D9	F761 H11	
3784 C13	F762 H6	
3785 H5	F763 H9	
3786 H8	F764 H11	
3787 H10	F765 I7	
3788 I6	F766 I10	
3789 I8	F767 I12	
3790 I11	I713 E2	
3791 I7	I714 E1	
3792 E7	I715 E6	
3793 F9	I716 E6	
3794 D7	I717 E8	
3795 E8	I719 E8	
3796 E7	I730 D8	

Small Signal Board: Columbus

B3D COLUMBUS

B3D

(ONLY FOR 3D COMB)

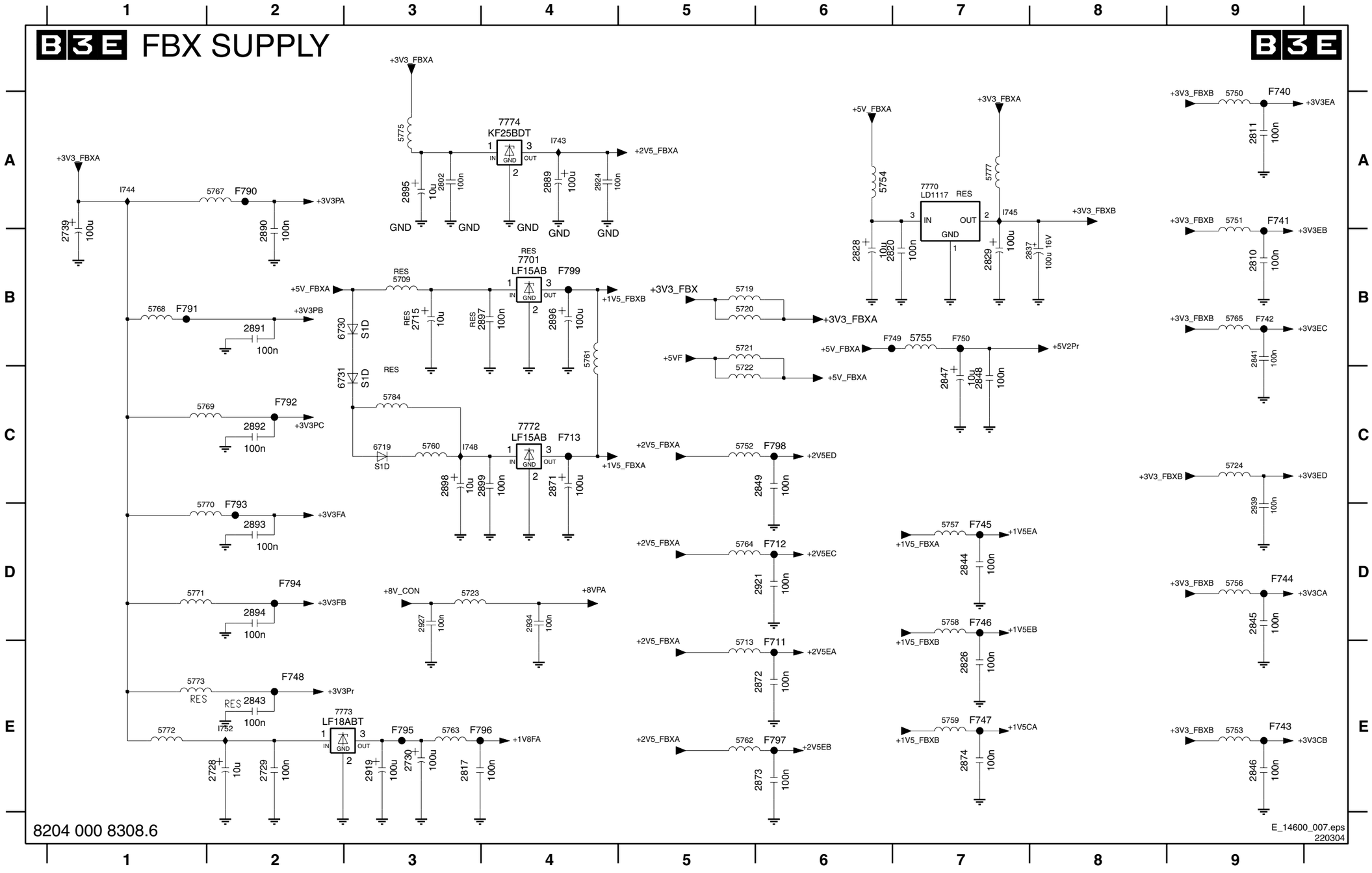
TO B3

8204 000 8308.6

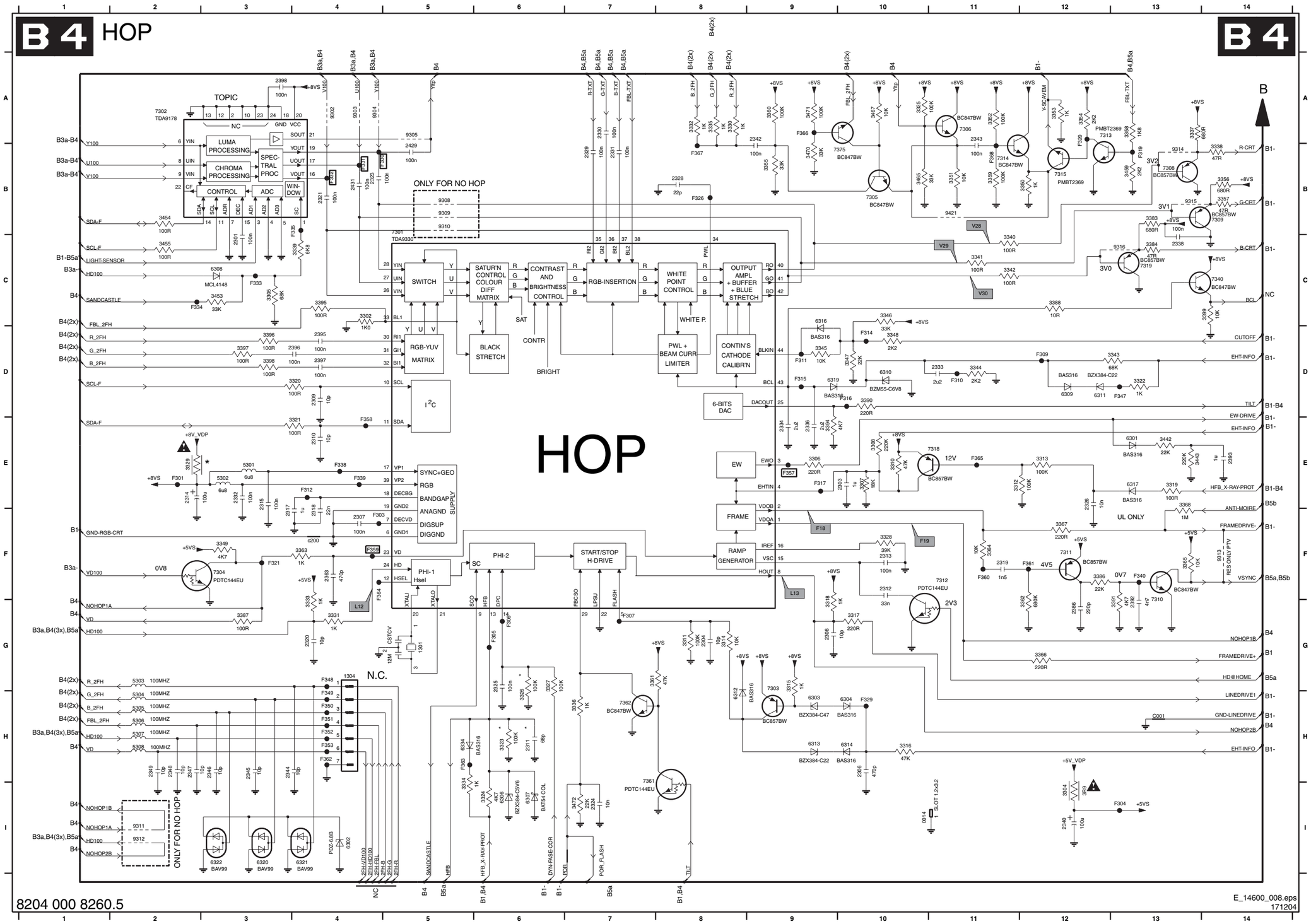
E_14600_006.eps
220304

2792 G10
2819 H3
2836 H3
2850 A1
2851 A1
2852 A1
2853 A2
2854 A2
2855 A2
2856 G2
2857 G2
2858 G2
2859 G2
2860 G3
2861 G3
2862 G3
2863 G3
2864 G4
2865 H2
2866 H2
2867 H2
2868 H2
2869 H3
2870 H3
3830 B11
3831 B10
3832 B11
3833 B11
3834 B10
3835 B11
3836 B11
3837 B10
3838 B11
3839 B10
3840 B11
3841 B11
3842 C10
3843 C11
3844 C11
3845 C10
3846 D1
3847 G5
3848 G6
3849 H10
3851 H10
3853 H5
3854 H6
3855 I6
3913-1 C10
3913-2 C10
3913-3 C10
3913-4 C10
3914-1 C10
3914-2 D10
3914-3 D10
3914-4 D10
3915-1 C10
3915-2 C10
3915-3 E10
3915-4 E10
3916-1 D10
3916-2 D10
3916-3 D10
3916-4 C10
3917-1 D10
3917-2 D10
3917-3 D10
3917-4 D10
5800 F10
7752-1 A7
7752-2 G6
7753 C3
9722 G11
9800 D2
9801 D2
9802 D2
9803 D2
9804 G6
9805 G6
9806 H5
9807 H5
9812 B6
9815 G10
9816 G10
9817 H10
9818 H11
F735 H10
F736 H10
I718 F10
I801 G6

Small Signal Board: FBX Supply


B3E FBX SUPPLY
B3E
+3V3_FBXA
+5V_FBXA
+3V3_FBXB
+5V_FBXB
+3V3_FBX
+5VF
+8V_CON
+2V5_FBXA
+1V5_FBXA
+1V5_FBXB
+3V3PA
+3V3PB
+3V3PC
+3V3FA
+3V3FB
+3V3Pr
+1V8FA
+1V5_FBXA
+1V5_FBXB
+2V5_FBXA
+2V5_FBXA
+2V5_FBXA

Small Signal Board: HOP



0014 I10	3344 D11	7340 C14
1301 G5	3345 D9	7361 I7
1304 G4	3346 C10	7362 H7
2301 C3	3347 D10	7375 B10
2303 E10	3348 D10	9302 A4
2304 G8	3349 F3	9303 A4
2306 H10	3350 B12	9304 A4
2307 F4	3351 B11	9305 A5
2308 G9	3352 A11	9308 B5
2309 D4	3353 A12	9309 B5
2310 E4	3354 A12	9310 B5
2311 H6	3355 B9	9311 I2
2312 F10	3356 B14	9312 I2
2313 F10	3357 B14	9313 F14
2314 E2	3358 A13	9314 B13
2315 E3	3359 B11	9315 B13
2317 F3	3360 A9	9316 C13
2318 F4	3361 G7	9421 B11
2319 F11	3362 G12	C001 H13
2320 G4	3363 F4	F301 E2
2321 B4	3364 F11	F303 F4
2323 B4	3365 F13	F304 I13
2324 I7	3366 G12	F305 G6
2325 G6	3367 F12	F306 G6
2326 E12	3368 E13	F307 G7
2328 B8	3383 B13	F309 D12
2329 B7	3384 C13	F310 D11
2330 A7	3386 F12	F311 D9
2331 B7	3387 G3	F312 E4
2332 E3	3388 C12	F314 D10
2333 D11	3390 D10	F315 D9
2334 E9	3391 G13	F316 D10
2336 E9	3394 E9	F317 E9
2338 C13	3395 C4	F319 B13
2340 I12	3396 D3	F320 A12
2342 A9	3397 D3	F321 F3
2343 A11	3398 D3	F326 B8
2344 H3	3399 C14	F329 H10
2345 H3	3442 E13	F330 B4
2346 H3	3443 E13	F331 B4
2347 H2	3453 C3	F332 B4
2348 H2	3454 B2	F333 C3
2349 H2	3455 C2	F334 C2
2363 F4	3459 B13	F335 B3
2386 G12	3465 B10	F338 E4
2392 G13	3467 A10	F339 E4
2393 E14	3470 B9	F340 F13
2395 D4	3471 A9	F347 D13
2396 D4	3472 I7	F348 G4
2397 D4	5301 E3	F349 H4
2398 A3	5302 E3	F350 H4
2429 B5	5303 G2	F351 H4
2431 B4	5304 H2	F352 H4
3302 C4	5305 H2	F353 H4
3304 I12	5306 H2	F357 E9
3305 C3	5307 H2	F358 E4
3306 E9	5308 H2	F359 F4
3307 E10	6301 E13	F360 F11
3308 E10	6302 I4	F361 F12
3310 E10	6303 H9	F362 H4
3311 G8	6304 H10	F363 H5
3312 E11	6306 I6	F364 F4
3313 E12	6307 I6	F365 E11
3314 G8	6308 C3	F366 A9
3315 G9	6309 D12	F367 B8
3316 H10	6310 D10	F368 B11
3317 G10	6311 D12	c200 F4
3318 G9	6312 H8	
3319 E13	6313 H9	
3320 D4	6314 H10	
3321 E4	6316 C9	
3322 D13	6317 E13	
3323 H6	6319 D9	
3324 I6	6320 I3	
3325 A10	6321 I4	
3326 H6	6322 I3	
3327 G6	6334 H5	
3328 F10	7301 B5	
3329 E2	7302 A2	
3330 A8	7303 G9	
3331 G4	7304 F3	
3332 A8	7305 B10	
3333 G4	7306 A11	
3334 I5	7308 B13	
3335 A8	7309 B14	
3336 H7	7310 G13	
3337 A13	7311 F12	
3338 B14	7312 F11	
3339 C4	7313 A13	
3340 C11	7314 B11	
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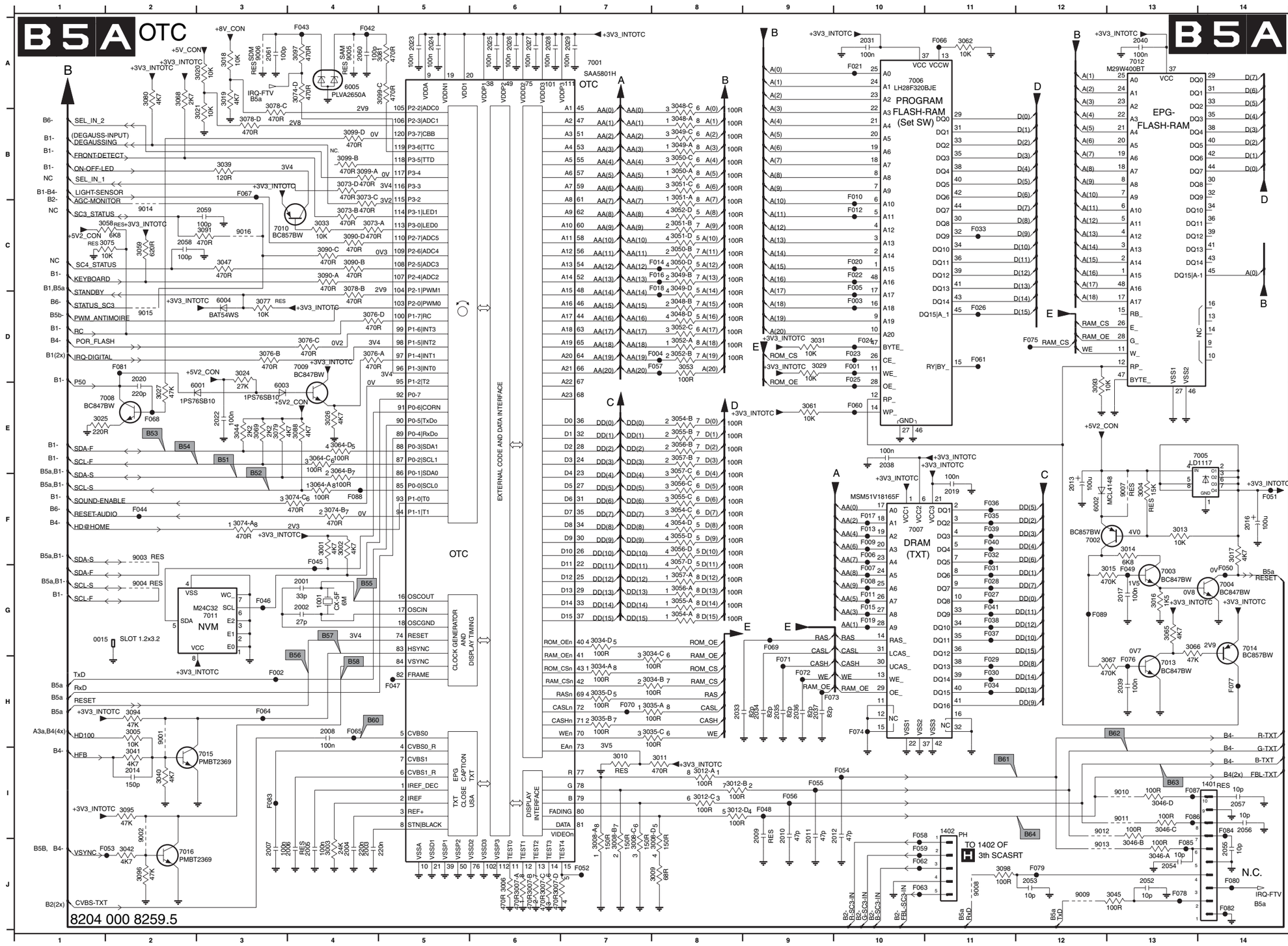
Small Signal Board: OTC Flash



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1402 I11	3044 E3	6003 E3	F061 D11
2001 G4	3045 J13	6004 D3	F062 J10
2002 G4	3046-A J13	6005 A4	F063 J10
2003 J4	3046-B J13	7001 A7	F064 H3
2004 J4	3046-C I13	7002 F12	F065 H4
2005 J4	3046-D I13	7003 G13	F066 A11
2006 J4	3047 C3	7004 G14	F067 B3
2007 J3	3048-A B8	7005 E14	F068 E2
2008 H4	3048-B D8	7006 A10	F069 G9
2009 I9	3048-C A8	7007 F10	F070 H7
2010 I9	3048-D D8	7008 E2	F071 H9
2011 I9	3049-A B8	7009 D4	F072 H9
2012 I10	3049-B C8	7010 C4	F073 H9
2013 F12	3049-C B8	7011 G3	F074 H10
2014 I2	3049-D C8	7012 A13	F075 D12
2016 F14	3050-A B8	7013 H13	F076 H13
2017 G13	3050-B C8	7014 G14	F077 H14
2019 F11	3050-C B8	7015 I3	F078 J13
2020 D2	3050-D C8	7016 J2	F079 J12
2022 E3	3051-A B8	9001 H2	F080 J14
2023 A5	3051-B C8	9002 I2	F081 D2
2024 A5	3051-C B8	9003 F2	F082 J14
2025 A6	3051-D C8	9004 G2	F083 I3
2026 A6	3052-A D8	9005 A4	F084 I14
2027 A6	3052-B D8	9006 A3	F085 J13
2028 A6	3052-C D8	9007 F13	F086 I13
2029 A7	3052-D C8	9008 J11	F087 I13
2031 A10	3053 D8	9009 J12	F088 F4
2033 H8	3054-A G8	9010 I13	F089 G12
2034 H9	3054-B E8	9011 I13	
2035 H9	3054-C F8	9012 I12	
2036 H9	3054-D F8	9013 J12	
2037 H9	3055-A G8	9014 C2	
2038 E10	3055-B E8	9015 D2	
2039 H13	3055-C F8	9016 C3	
2040 A13	3055-D F8	F001 D10	
2052 J13	3056-A G8	F002 H3	
2053 J12	3056-B E8	F003 D10	
2054 J13	3056-C F8	F004 D8	
2055 J14	3056-D F8	F005 C10	
2056 I14	3057-A G8	F006 F10	
2057 I14	3057-B E8	F007 G10	
2058 C2	3057-C E8	F008 G10	
2059 C3	3057-D F8	F009 F10	
2060 A4	3058 C2	F010 B10	
2061 A3	3059 C2	F011 G10	
3001 F4	3061 E9	F012 C10	
3002 F4	3062 A11	F013 F10	
3003 J4	3064-A F4	F014 C8	
3004 F13	3064-B E4	F015 G10	
3005 H2	3064-C E4	F016 C8	
3006 J6	3064-D E4	F017 F10	
3007-A J6	3065 G13	F018 C8	
3007-B J6	3066 G13	F019 G10	
3007-C J6	3067 H13	F020 C10	
3007-D J6	3068 A2	F021 A10	
3008-A I7	3069 E3	F022 C10	
3008-B I7	3073-A C4	F023 D10	
3008-C I7	3073-B C4	F024 D10	
3008-D I8	3073-C B4	F025 D10	
3009 J8	3073-D B4	F026 D11	
3010 I7	3074-A F3	F027 G11	
3011 I8	3074-B F4	F028 G11	
3012-A I8	3074-C F4	F029 H11	
3012-B I8	3074-D A4	F030 H11	
3012-C I8	3075 C2	F031 G11	
3012-D I8	3076-A D4	F032 F11	
3013 F13	3076-B D3	F033 C11	
3014 F13	3076-C D4	F034 H11	
3015 G13	3076-D D4	F035 F11	
3016 G13	3077 D3	F036 F11	
3017 F14	3078-B C4	F037 G11	
3018 A3	3078-C A3	F038 G11	
3019 A3	3078-D B3	F039 F11	
3020 A3	3079 E3	F040 F11	
3021 B3	3080 A2	F041 G11	
3024 D3	3081 A5	F042 A4	
3025 E1	3088 E4	F043 A4	
3026 E4	3090-A C4	F044 F2	
3027 E2	3090-B C4	F045 F4	
3029 D9	3090-C C4	F046 G3	
3031 D9	3090-D C4	F047 H5	
3033 C4	3091 C3	F048 I9	
3034-A H7	3093 E12	F049 G13	
3034-B H8	3094 H2	F050 G14	
3034-C G8	3095 I2	F051 F14	
3034-D G7	3096 J2	F052 J7	
3035-A H8	3097 A4	F053 J2	
3035-B H7	3098 J11	F054 I10	
3035-C H8	3099-A B4	F055 I9	
3035-D H7	3099-B B4	F056 I9	
3039 B3	3099-C A5	F057 D8	

Small Signal Board: Anti Moiré

2062 B3	2065 D2	3022 A2	3030 B4	3037 C2	3060 D1	3071 D2	6007 C2	7019 D2	F091 A2	F094 C2	F097 D2	
2063 C4	2066 A3	3023 A3	3032 B3	3038 C2	3063 D2	3072 C4	7017 A2	7020 E1	F092 B3	F095 C2		
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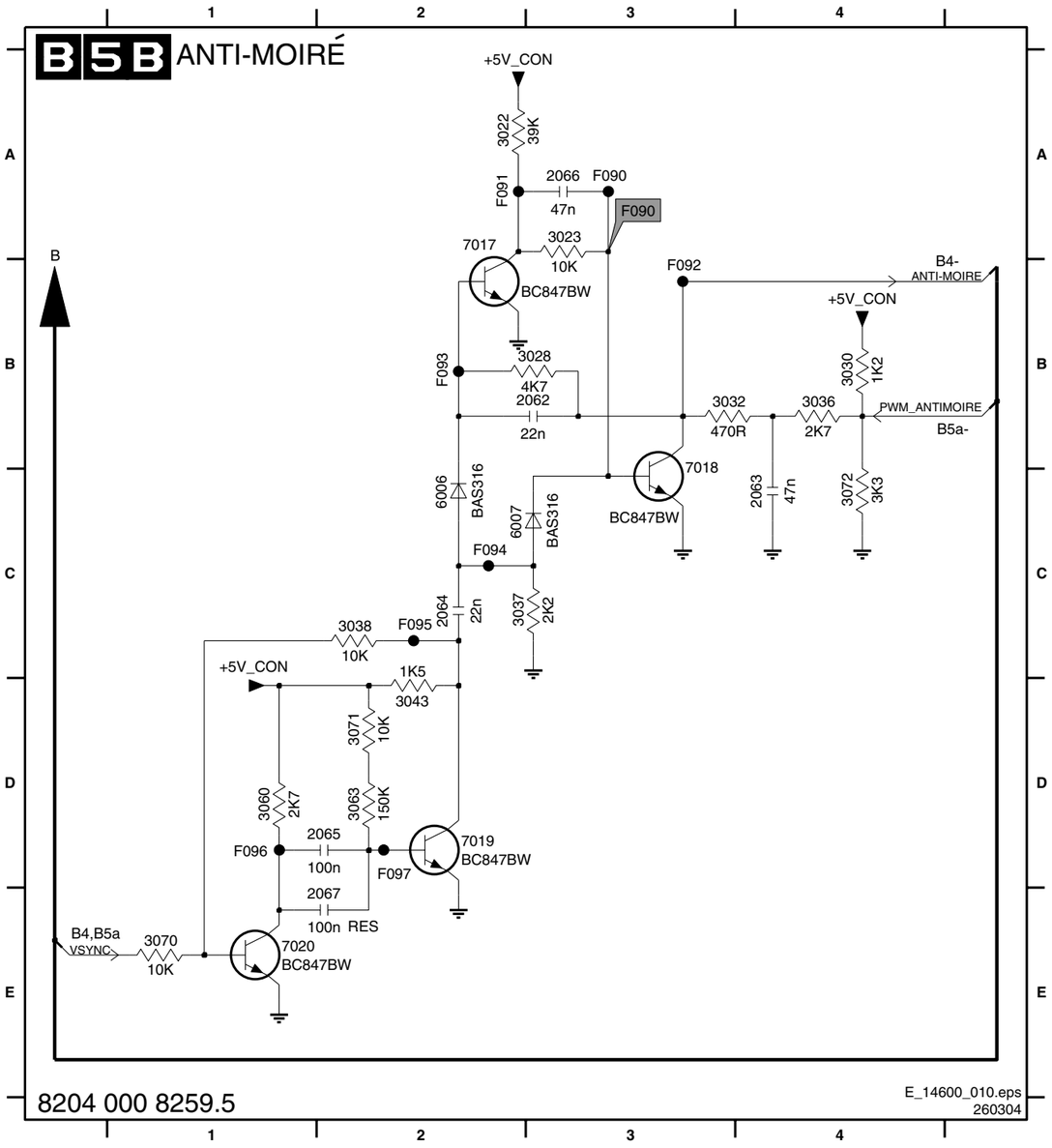
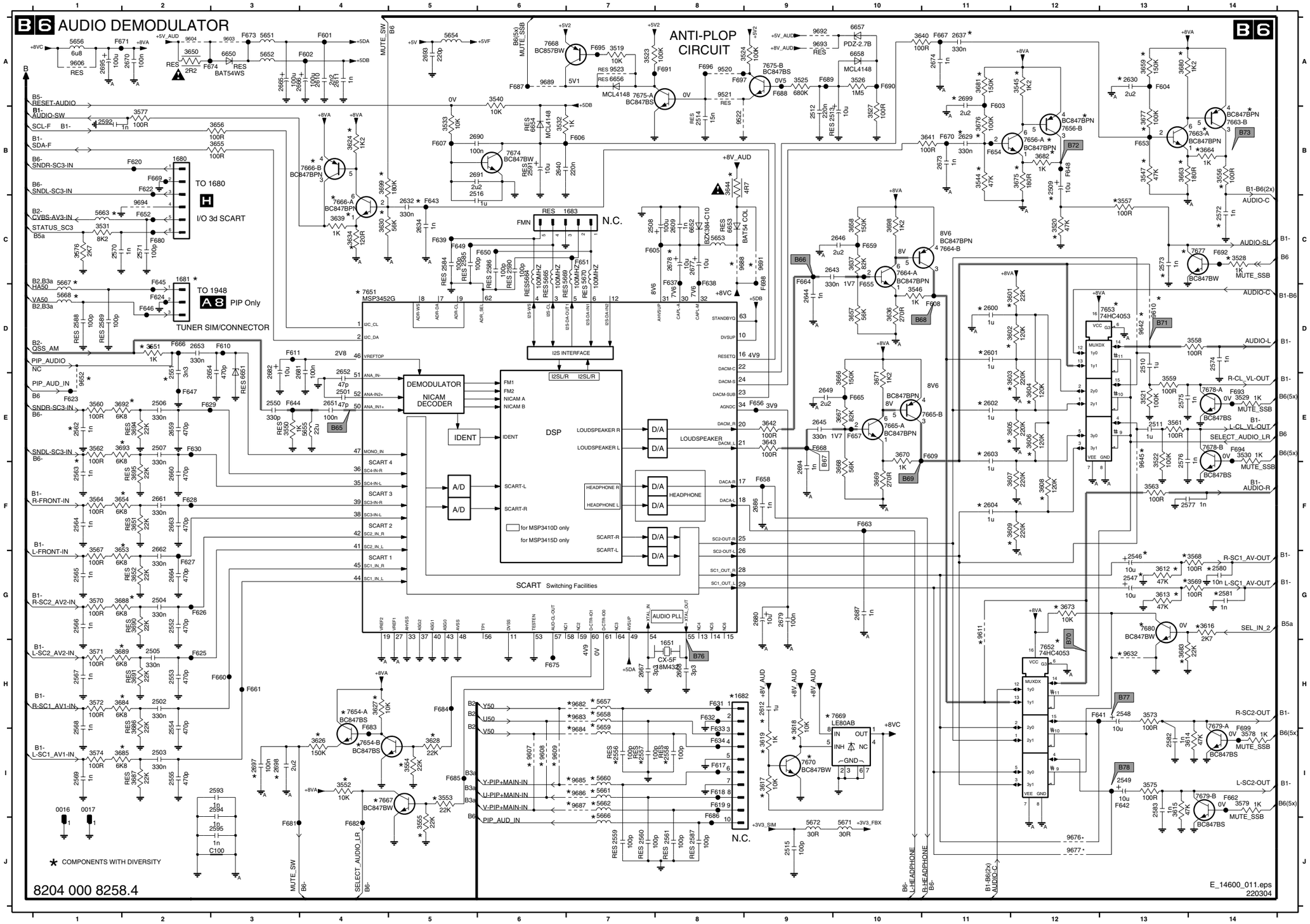


Notes:

Small Signal Board: Audio Demodulator



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1681 C2	3531 C1	3653 G1	F683 I4						
1682 H8	3532 B6	3654 B6	F684 H5						
1683 C7	3533 B5	3656 A7	F685 I5						
2501 E4	3540 A6	3657 A10	F686 J8						
2502 H2	3544 B11	3658 A10	F687 A6						
2503 I2	3545 A12	7651 D4	F688 A9						
2504 G2	3546 D10	7652 H12	F689 A9						
2505 H2	3547 B13	7653 D13	F690 A10						
2506 E2	3550 E3	7654-A H4	F691 A8						
2507 E2	3551 D2	7654-B I4	F692 C14						
2508 C7	3552 I4	7656-A B12	F693 E14						
2509 B12	3553 I5	7656-B B12	F694 E14						
2510 D13	3554 I5	7663-A B14	F695 A7						
2511 E13	3555 J5	7663-B B14	F696 A8						
2512 B9	3556 B14	7664-A C10	F697 A8						
2513 B10	3557 C13	7664-B C11	F698 C9						
2514 B8	3558 D14	7665-A E10	F699 I14						
2515 J9	3559 E13	7665-B E11							
2516 C5	3560 E1	7666-A C4							
2546 G13	3561 E13	7666-B B4							
2547 G13	3562 E1	7667 I5							
2548 H13	3563 F13	7668 A6							
2549 I13	3564 F1	7669 H9							
2550 E3	3567 G1	7670 I9							
2551 D2	3568 G14	7674 B6							
2552 G2	3569 G14	7675-A A7							
2553 H2	3570 G1	7675-B A9							
2554 H2	3571 H1	7677 C14							
2555 I2	3572 H1	7678-A E14							
2556 I7	3573 H13	7678-B E14							
2557 I7	3574 I1	7679-A H14							
2558 I8	3575 I13	7679-B I14							
2559 J7	3576 C1	7680 G13							
2560 J7	3577 B2	9520 A8							
2561 J8	3578 I14	9521 A8							
2562 E1	3579 I14	9522 B8							
2563 F1	3601 D12	9523 A7							
2564 F1	3602 D12	9603 A3							
2565 G1	3603 E12	9604 A2							
2566 G1	3604 E12	9606 A1							
2567 H1	3605 E12	9607 I6							
2568 H1	3606 E12	9608 I6							
2569 I1	3607 F12	9609 I6							
2570 C1	3608 F12	9610 D13							
2571 C2	3609 F12	9611 G11							
2572 C14	3612 G13	9632 H13							
2573 C13	3613 G13	9642 D13							
2574 D14	3614 I14	9645 E13							
2575 E13	3615 I14	9652 E1							
2576 E13	3616 G14	9676 J12							
2577 F13	3617 I9	9677 J12							
2580 G14	3618 H9	9682 H7							
2581 G14	3619 I9	9683 H7							
2582 I13	3624 B4	9684 I7							
2583 I13	3626 I4	9685 I7							
2584 C5	3627 H4	9686 I7							
2585 C5	3628 I5	9687 I7							
2586 C6	3630 C4	9688 C8							
2587 J8	3634 C4	9689 A6							
2588 D1	3636 D10	9691 C9							
2589 D1	3637 C10	9692 A9							
2590 C6	3639 C4	9693 A9							
2591 B6	3640 A10	9694 C2							
2592 B1	3641 B11	C100 J3							
2593 I3	3642 E9	F601 A4							
2594 I3	3643 E9	F602 A4							
2595 J3	3644 B8	F603 B11							
2600 D11	3650 A2	F604 A13							
2601 D11	3651 F2	F605 C7							
2602 E11	3652 G2	F606 B7							
2603 E11	3653 G1	F607 B5							
2604 F11	3654 F1	F608 D11							
2609 C8	3655 B3	F609 E11							
2610 A4	3656 B3	F610 D3							
2611 A4	3657 D10	F611 D3							
2612 H9	3658 C10	F617 I8							
2629 B11	3659 A13	F618 I8							
2630 A13	3663 B13	F619 I8							
2632 C5	3664 B14	F620 B2							
2634 C5	3666 E10	F622 B2							
2637 A11	3667 E10	F623 E1							
2640 B6	3668 F10	F624 D2							
2643 C9	3669 F10	F625 H2							
2644 D9	3670 E10	F626 G2							
2645 E9	3671 E10	F627 G2							
2646 C10	3673 G12	F628 F2							
2649 E9	3675 B12	F629 E2							
2651 E4	3676 B11	F630 E2							
2652 E4	3677 B13	F631 H8							
2653 D2	3680 A13	F632 H8							
2654 D3	3681 A11	F633 I8							
2659 E2	3682 B12	F634 I8							
2660 F2	3683 H13	F637 C8							
2661 F2	3684 H1	F638 C8							
2662 G2	3685 I1	F639 C5							
2663 F2	3686 H2	F641 H12							
2664 G2	3687 I2	F642 I13							
2665 A3	3688 G1	F643 C5							
2666 A4	3689 H1	F644 E3							
2667 H7	3690 G2	F645 D2							
2668 H8	3691 H2	F646 D2							
2670 A2	3692 E1	F647 E2							
2673 B11	3693 E2	F648 B12							
2674 A11	3694 E2	F649 C5							
2677 C8	3695 F2	F650 C6							
2678 C8	3698 C10	F651 C7							
2679 G9	3699 B4	F652 C2							
2680 G9	5651 A3	F653 B13							
2681 D4	5652 A3	F654 B11							
2682 D3	5653 C8	F655 D10							
2686 F9	5654 A5	F656 E9							
2687 G10	5655 E4	F657 E10							
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2691 B5	5657 H7	F659 C10							
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3520 C12	5665 C6	F667 A11							
3521 E13	5666 J7	F668 E9							
3522 E13	5667 D1	F669 B2							
3523 A7	5668 D1	F670 B11							
3524 A9	5669 C7	F671 A1							
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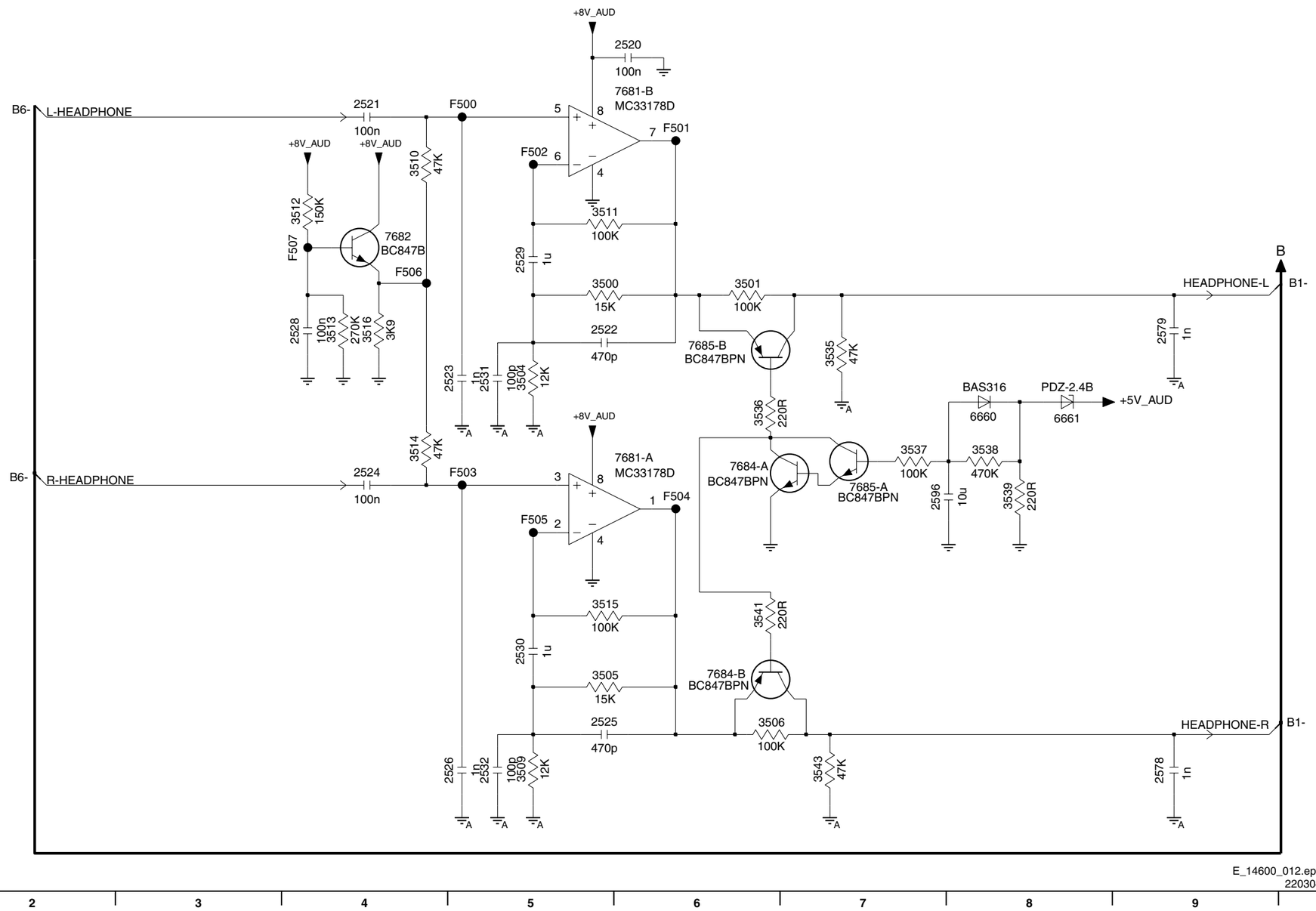
Small Signal Board: Headphone Amplifier

B10 HEADPHONE-AMPLIFIER



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2531 C5
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2578 E9
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2596 C7
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3510 A4
3511 B5
3512 B4
3513 B4
3514 C4
3515 D5
3516 B4
3535 C7
3536 C6
3537 C7
3538 C8
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3541 D6
3543 E7
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7684-A C6
7684-B E6
7685-A C7
7685-B C6
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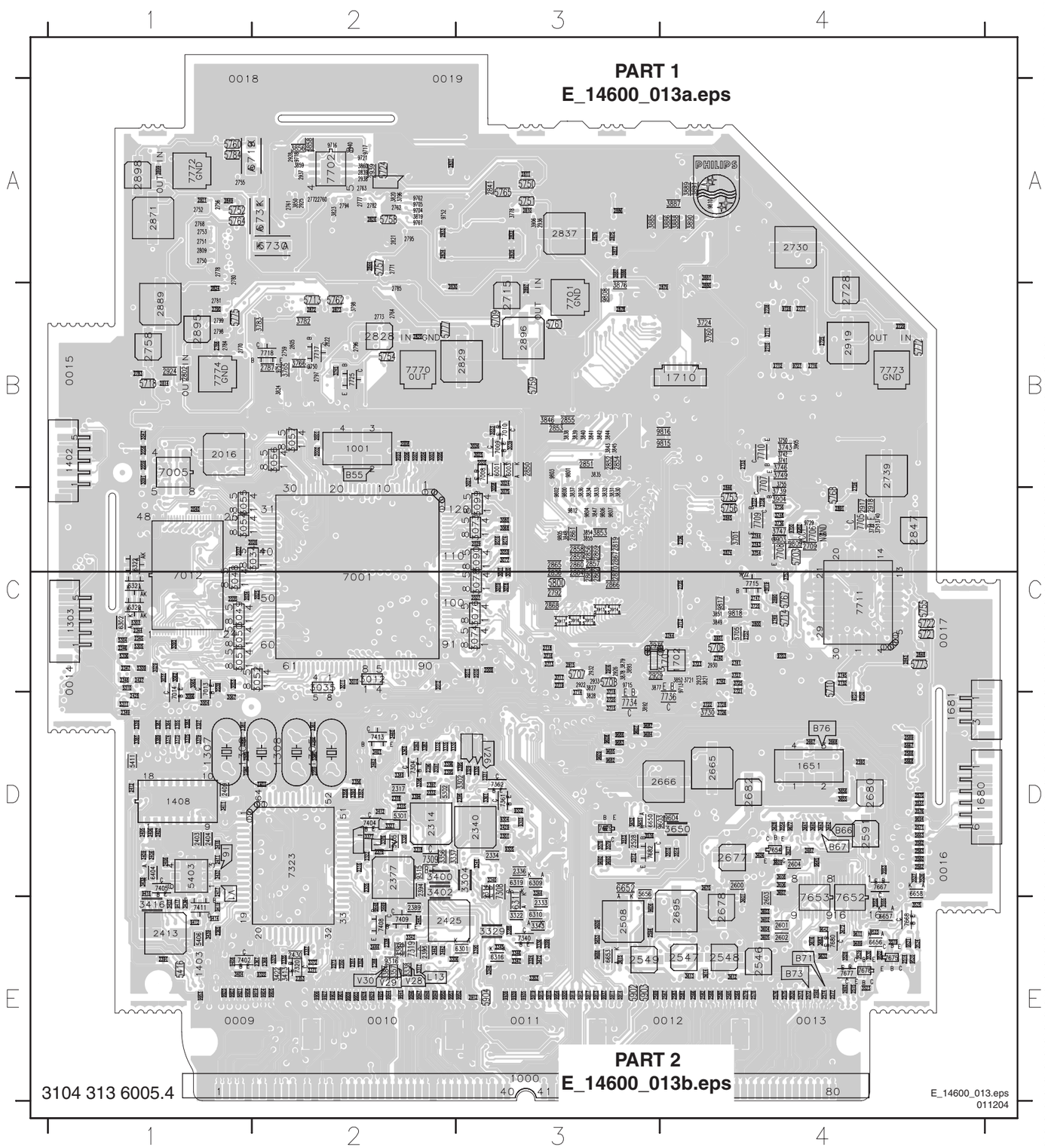
Layout Small Signal Board (Overview Top Side)



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0010	E2	2362	D2	2680	D4	2832	A3	3021	C3	3397	D2	3721	C4	3905	B4	6650	D4	9632	E4
0011	E3	2363	D2	2682	D4	2833	A2	3024	B3	3398	D2	3723	C4	3906	A3	6652	D3	9642	E4
0012	E4	2364	D1	2687	D4	2834	A2	3025	B3	3399	E3	3724	B4	3913	C3	6653	E3	9645	D4
0013	E4	2365	E1	2693	E4	2835	A3	3026	B3	3400	D2	3725	C4	3914	C3	6656	E4	9677	D4
0014	D1	2367	E2	2695	D4	2836	C3	3027	B3	3402	D2	3726	D4	3915	C3	6657	E4	9682	D3
0015	B1	2368	E2	2709	C4	2837	A3	3029	C1	3404	E1	3727	C4	3916	C3	6658	E4	9683	D3
0016	D4	2373	E2	2710	B4	2839	A2	3031	C1	3406	D1	3728	D4	3917	C3	6719	A2	9684	D3
0017	C4	2376	D2	2711	B4	2841	A3	3033	B3	3409	D1	3730	D4	5301	D2	6730	A2	9685	D3
0018	A1	2377	D2	2712	B4	2843	C4	3034	C2	3411	D1	3732	C4	5302	D2	6731	A2	9686	D3
0019	A2	2379	D1	2715	B3	2844	A2	3035	C2	3412	D2	3736	C4	5303	C1	7001	B2	9687	D3
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1001	B2	2381	D1	2717	B4	2846	C4	3047	B1	3416	E1	3738	C4	5305	C1	7008	B3	9689	E4
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1305	D2	2383	D1	2719	C3	2848	C4	3049	C2	3422	E2	3740	C4	5309	C1	7010	B3	9693	D3
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2001	B2	2404	D1	2737	C4	2861	C3	3066	D1	3461	D2	3753	C4	5667	D4	7402	E1	9727	B4
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2004	B2	2406	D1	2739	B4	2863	C3	3068	C3	3472	E3	3755	B4	5703	C4	7405	D1	9729	C4
2005	B2	2407	D1	2740	C4	2864	C3	3073	C3	3510	D4	3756	C4	5705	C4	7408	E2	9730	D4
2006	B2	2408	D1	2741	C4	2865	C3	3074	C3	3512	D3	3760	B4	5706	C4	7409	E2	9731	D4
2007	B2	2409	D1	2742	C4	2866	C3	3075	C3	3513	D3	3765	B2	5707	C3	7411	E1	9750	B2
2008	B2	2411	D1	2743	C4	2867	C3	3076	C3	3514	D4	3766	B2	5708	C3	7413	D2	9751	B2
2009	C3	2412	D1	2744	C4	2868	C3	3077	C3	3516	D3	3778	A3	5709	B3	7652	D4	9752	A2
2010	C3	2413	E1	2745	C4	2869	C3	3078	C2	3519	E4	3782	B2	5710	C4	7653	D4	9761	A2
2011	C3	2417	D1	2747	C4	2870	C3	3080	C3	3520	E4	3783	B2	5713	B2	7654	D4	9762	A2
2012	C2	2425	E3	2749	C4	2871	A1	3090	C3	3523	E4	3796	A2	5714	C4	7667	D4	9800	C3
2016	B1	2427	C1	2750	A1	2872	B2	3091	B1	3524	E4	3798	B2	5718	B1	7668	E4	9801	B3
2020	B3	2428	D1	2751	A1	2873	B2	3093	C1	3525	E4	3819	A2	5721	C4	7675	E4	9802	C3
2023	B2	2429	D3	2752	A1	2874	C4	3099	C3	3526	D4	3820	A2	5722	C4	7677	E4	9803	B3
2025	C2	2430	E2	2753	A1	2875	A3	3302	D3	3527	D4	3821	C4	5724	A2	7678	E4	9804	C3
2027	C3	2508	E3	2755	A1	2876	A3	3304	E3	3528	E4	3823	A2	5750	A3	7679	D3	9805	C3
2028	C2	2514	E4	2756	A1	2877	A3	3306	E2	3529	E4	3824	B2	5751	A3	7680	E4	9806	C3
2029	C3	2515	E4	2758	B1	2878	B3	3317	E2	3530	E4	3827	C3	5752	A1	7682	D4	9807	C3
2034	C1	2528	D3	2759	B2	2879	B4	3318	D2	3531	D4	3828	D3	5753	C4	7701	A3	9808	B3
2035	C1	2546	E4	2760	A2	2880	B4	3320	D2	3552	E4	3830	C3	5754	B2	7702	A2	9809	C4
2037	C1	2547	E4	2761	A2	2881	A4	3321	D2	3553	D4	3831	C3	5755	C4	7705	C4	9810	A4
2039	C1	2548	E4	2762	A2	2886	A3	3322	E3	3554	D4	3832	C3	5756	C4	7706	C4	9812	C3
2040	C1	2549	E3	2763	A2	2887	A3	3329	E3	3555	E4	3833	C3	5757	A2	7707	C4	9815	B4
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2305	D2	2565	E4	2771	A2	2891	C4	3336	E3	3578	D3	3837	C3	5761	B3	7711	C4	9901	E2
2314	D2	2566	E4	2772	A2	2895	B1	3337	D2	3579	D3	3838	B3	5762	B2	7715	C4	9902	E2
2315	D2	2567	E4	2773	B2	2896	B3	3338	E2	3601	E4	3839	B3	5764	A1	7717	B2	9903	E2
2316	D2	2568	E4	2777	A2	2897	B3	3340	D3	3602	E4	3840	B3	5765	A3	7718	B1	9904	E2
2317	D2	2569	E3	2778	A1	2898	A1	3341	D3	3603	E4	3841	B3	5767	C4	7725	B2	9905	E2
2318	D2	2570	D4	2780	A1	2899	A1	3342	E2	3604	E4	3842	B3	5768	C4	7734	C3	9906	E2
2322	D2	2571	D4	2781	B1	2912	E3	3343	E3	3605	E4	3843	B3	5772	B4	7736	C4	9907	E1
2324	E3	2572	E4	2782	A2	2915	C3	3344	D3	3606	D4	3844	B3	5773	C4	7770	B2	9908	E1
2327	D1	2573	E4	2783	B1	2916	C3	3345	E3	3607	D4	3845	B3	5775	B1	7772	A1	9909	E2
2329	D3	2574	E4	2784	B1	2917	C4	3346	E3	3608	D4	3846	B3	5777	B2	7773	B4	9919	E2
2330	D3	2575	E4	2785	B2	2918	C4	3347	E3	3609	D4	3847	C3	5784	A1	7774	B2	9920	E1
2331	D3	2576	E4	2787	B2	2919	B4	3348	E3	3612	E4	3848	C3	5800	C3	9014	C3	9921	E1
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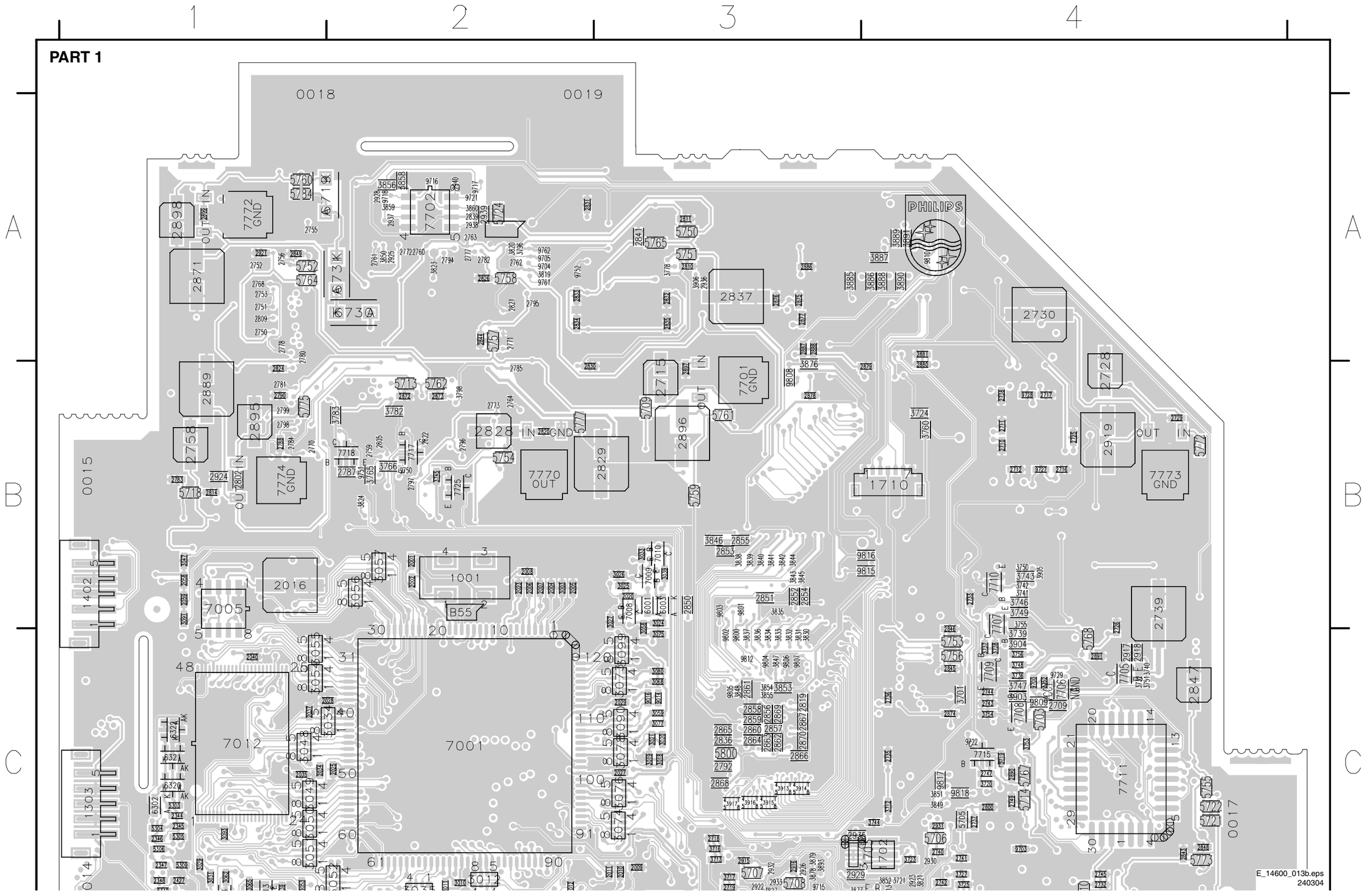
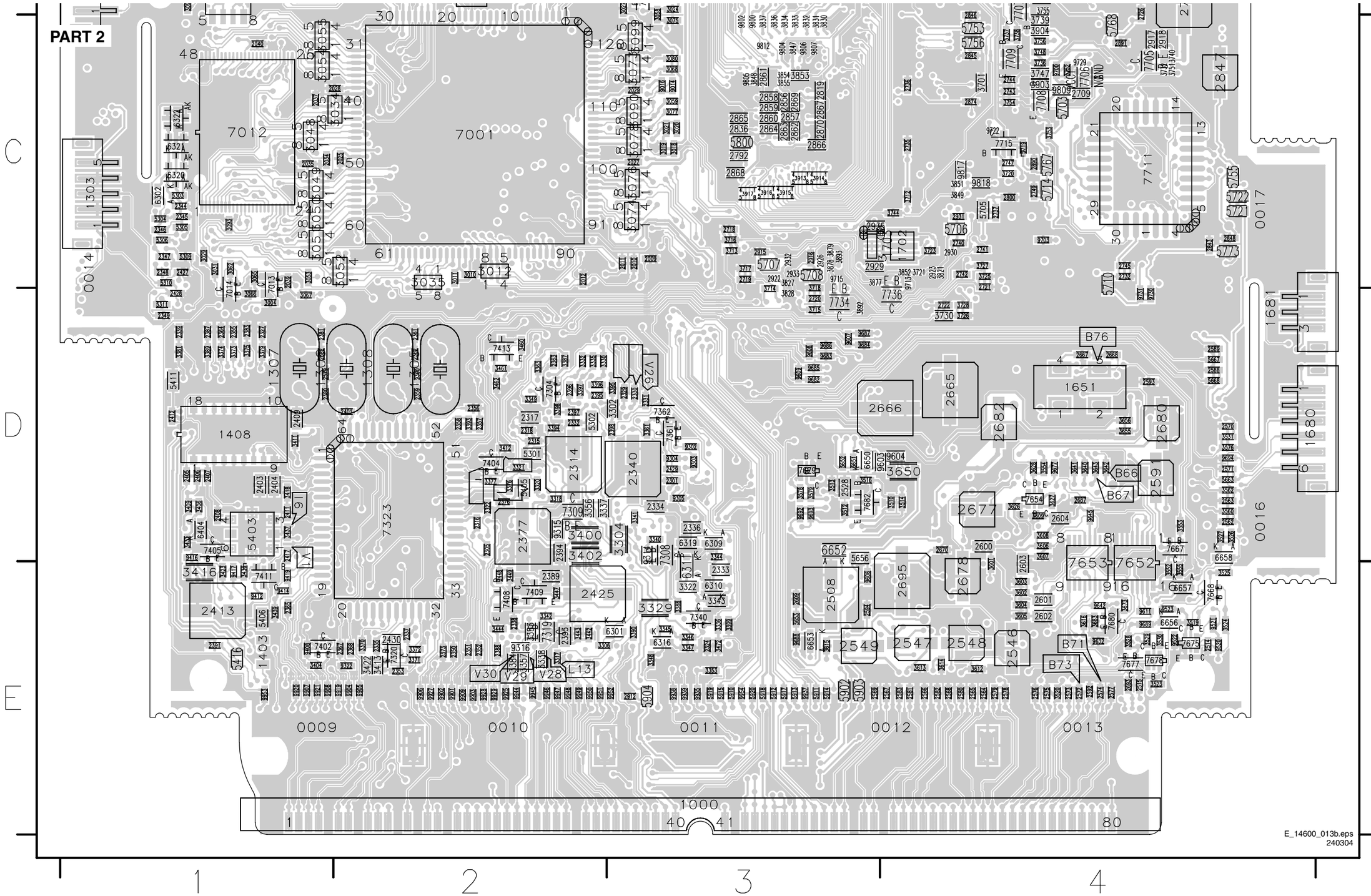
2333	E3	2578	E4	2790	B1	2922	C3	3353	E3	3614	E4	3850	A2	5903	E3	9302	D3	9927	E2
2334	D3	2579	E4	2792	C3	2923	C4	3356	D2	3615	E3	3851	C4	5904	E3	9303	D3	9928	E2
2335	E2	2580	E4	2794	A2	2924	B1	3357	E2	3616	E4	3852	C4	5910	E3	9304	D3	9929	E2
2336	D3	2581	E4	2795	A2	2925	A2	3361	D3	3626	D4	3853	C3	5911	E3	9305	D3	9935	E3
2337	E2	2582	E4	2796	B2	2926	C3	3363	D2	3627	D4	3854	C3	5912	E3	9314	D3	9937	E3
2338	E2	2583	E4	2797	B2	2928	A2	3370	E2	3628	D4	3855	C3	5913	E3	9315	D2	9938	E3
2339	D1	2588	D4	2798	B1	2929	C3	3371	E2	3640	D4	3856	A2	5914	E3	9316	E2	9939	E3
2340	D3	2589	D4	2799	B1	2930	C4	3372	E2	3641	D4	3858	A2	5915	E3	9322	E2	9944	E2
2344	C1	2591	D4	2800	C4	2931	C4	3373	D1	3642	D4	3859	A2	5917	E3	9408	E1	9945	E2
2345	C1	2592	E4	2802	B1	2932	C3	3374	D1	3643	D4	3860	A2	5918	E3	9412	E1	9946	E2
2346	C1	2593	D4	2805	B2	2933	C3	3375	D1	3650	D4	3876	B3	5919	E3	9414	E1	9947	E2
2347	C1	2594	E3	2809	A1	2935	C3	3376	D2	3655	D4	3877	C3	5920	E3	9416	D1	9948	E2
2348	C1	2600	D4	2810	A3	2936	A3	3377	D2	3656	D4	3878	C3	6001	B3	9417	E1	9949	E2
2349	D1	2601	E4	2811	A3	2937	A2	3379	D1	3673	E4	3879	C3	6003	B3	9419	E1	9950	E2
2350	E2	2602	E4	2814	B1	2938	A2	3381	D1	3683	E4	3885	A3	6301	E3	9520	E4	9951	E2
2351	E2	2603	E4	2819	C3	2939	A2	3383	E2	3701	C4	3886	A4	6302	C1	9521	E4	9952	E3
2352	E2	2604	D4	2820	B2	2940	A2	3384	E2	3712	C4	3887	A4	6309	D3	9522	E4	9953	E1
2353	E2	2609	E3	2821	A2	3003	B2	3387	D2	3713	C3	3888	A4	6310	E3	9523	E4	9954	E3
2355	D1	2665	D4	2822	B2	3004	D1	3388	E3	3714	D3	3889	A4	6311	E3	9603	D4		
2356	D2	2666	D3	2824	B1	3010	C2	3389	D1	3715	D3	3890	A4	6316	E3	9604	D4		
2357	D2	2667	D4	2826	A2	3011	C2	3390	E3	3716	C3	3891	A4	6319	D3	9606	E3		
2358	D2	2668	D4	2828	B2	3012	C2	3393	D2	3717	C3	3892	D3	6320	C1	9607	D3		
2359	D2	2670	D4	2829	B2	3018	C3	3394	D2	3718	C3	3893	C3	6321	C1	9608	D3		
2360	D2	2677	D4	2830	B2	3019	C3	3395	D3	3719	C4	3903	C4	6322	C1	9609	D3		

Layout Small Signal Board (Part 1 Top Side)

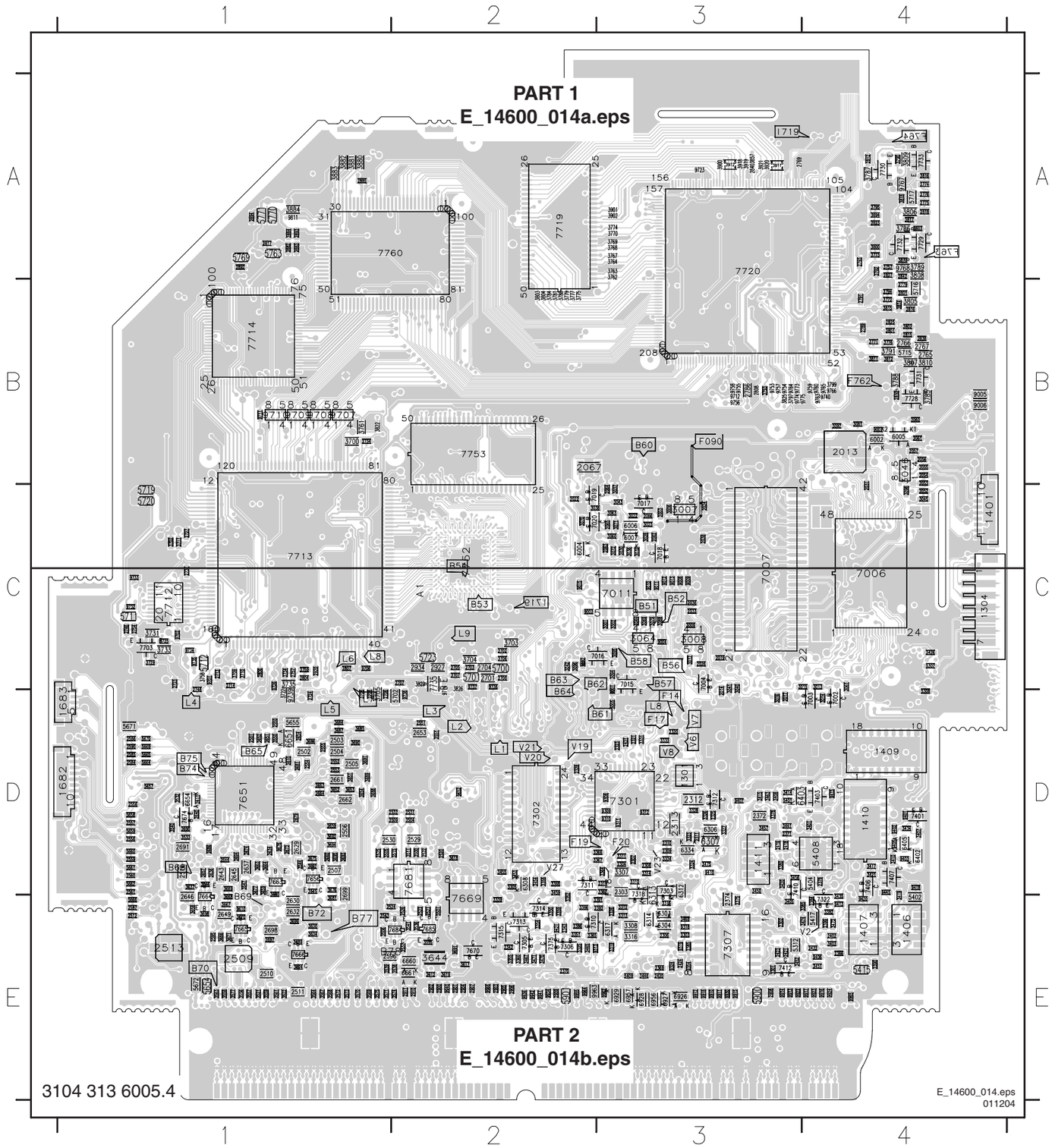
PART 1



Layout Small Signal Board (Part 2 Top Side)



Layout Small Signal Board (Overview Bottom Side)



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0010 E3	2419 D3	2702 C2	3037 C3	3453 D2	3682 D1	3826 C2	7002 D4	9406 E4	
0011 E2	2420 E3	2703 C2	3038 C2	3454 D2	3684 D1	3829 C2	7003 D4	9407 D3	
0012 E1	2421 E3	2704 C2	3040 C3	3455 D2	3685 D1	3857 A3	7004 D3	9410 D3	
0013 E1	2422 E4	2705 C2	3041 C3	3456 D3	3686 D1	3880 A1	7006 C4	9413 E4	
0014 C4	2423 E3	2706 D1	3042 C2	3457 D3	3687 D1	3881 A1	7007 C4	9415 D4	
0015 B4	2424 E3	2707 C2	3043 C3	3459 D2	3688 D1	3882 A1	7011 C3	9418 D4	
0016 D1	2426 C4	2708 D1	3044 C3	3463 D3	3689 D1	3883 A1	7015 D3	9420 E4	
0017 C1	2431 D3	2713 C1	3045 C4	3465 E2	3690 D1	3884 A1	7016 C2	9421 E2	
0018 A4	2501 D1	2714 C1	3046 B4	3467 E2	3691 D1	3894 A4	7017 B3	9610 E1	
0019 A3	2502 D1	2723 C1	3060 C3	3468 E3	3692 D1	3900 A3	7018 C3	9652 D2	
1000 E2	2503 D1	2724 D1	3061 C4	3470 E2	3693 D1	3901 A3	7019 B2	9676 D1	
1301 D3	2504 D1	2727 C1	3063 C3	3471 E2	3694 D1	3902 A3	7020 C2	9691 E2	
1304 C4	2505 D1	2731 C1	3064 C3	3473 E4	3695 D1	3911 A3	7301 D2	9701 C1	
1305 D3	2506 D1	2734 B1	3069 C3	3474 E4	3698 E1	3912 A3	7302 D2	9702 C1	
1306 D4	2507 D1	2746 C1	3070 C2	3475 D3	3699 E1	3918 A3	7303 E3	9706 C1	
1307 D4	2509 E1	2748 D1	3071 C3	3500 D2	3700 B1	3919 A3	7305 E2	9707 B1	
1308 D3	2510 E1	2754 C1	3072 C3	3501 E2	3702 C1	3920 A3	7306 E2	9708 B1	
1401 C4	2511 E1	2757 C1	3079 C3	3504 D2	3703 C2	3921 A3	7307 E3	9709 B1	
1406 E4	2512 E1	2765 B4	3081 B4	3505 D1	3704 C2	5307 C4	7310 E3	9710 B1	
1407 E4	2513 E1	2766 B4	3088 C3	3506 E1	3705 D1	5308 D4	7311 D2	9711 B1	
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1410 D4	2520 D2	2769 A3	3095 C3	3511 D2	3707 C2	5401 D3	7313 E2	9714 D2	
1411 D3	2521 E2	2774 A4	3096 C2	3515 D2	3708 D1	5402 E4	7314 E2	9723 A3	
1682 D1	2522 D2	2775 A4	3097 B4	3521 E1	3709 C1	5404 D4	7315 E2	9725 C1	
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2003 C3	2524 E1	2779 B4	3301 E3	3532 D1	3711 C1	5409 E3	7322 E4	9732 C1	
2013 B4	2525 D1	2786 B3	3303 E3	3533 D1	3722 D1	5415 E4	7375 E2	9733 C1	
2014 D3	2526 E2	2789 B4	3305 D2	3535 E2	3729 C1	5417 E4	7401 D4	9734 C1	
2017 D3	2529 D2	2791 B4	3307 D3	3536 E2	3731 C1	5654 E1	7403 D4	9735 C1	
2019 C3	2530 D1	2793 A4	3308 E3	3537 E2	3733 C1	5655 D1	7406 D4	9736 C2	
2022 C2	2531 D2	2801 B4	3310 D3	3538 E2	3734 C1	5657 D1	7407 D4	9737 C2	
2024 C3	2532 D2	2803 A4	3311 D3	3539 E1	3735 C1	5658 D1	7410 D3	9738 D2	
2026 C3	2550 D1	2804 C1	3312 E3	3540 D1	3757 A4	5659 D1	7412 E3	9739 D1	
2031 C4	2551 D2	2806 C1	3313 E3	3541 E2	3758 C1	5660 D1	7651 D1	9740 B4	
2033 C3	2552 D1	2807 C1	3314 D3	3543 E1	3759 C1	5661 D1	7656 D1	9753 B3	
2036 C3	2553 D1	2808 B3	3315 E3	3544 D1	3761 B1	5662 D1	7663 D1	9754 B3	
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2052 C4	2555 D1	2813 B4	3319 E3	3546 D1	3763 A3	5665 D1	7665 E1	9756 B3	
2053 B4	2556 D1	2815 B4	3323 D3	3547 D1	3764 A3	5666 E1	7666 E1	9757 B3	
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2060 B4	2561 D1	2825 B4	3328 D3	3558 E1	3771 B4	5700 C2	7684 E2	9764 B3	
2061 B4	2584 D1	2827 A4	3331 D3	3559 E1	3772 B4	5701 C2	7685 E2	9765 B4	
2062 C3	2585 D1	2838 B4	3333 D3	3561 E1	3773 A4	5702 D2	7703 C1	9766 B4	
2063 C3	2586 D1	2840 A3	3334 D3	3563 E1	3774 A3	5711 C1	7712 C1	9767 A4	
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2308 D3	2632 E1	2901 E2	3362 D3	3575 E1	3787 A4	5770 A1	7733 A4	9914 E3	
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2342 E2	2659 D1	2934 C2	3403 E4	3652 D1	3802 B4	6308 E2	9009 C3	9942 E2	
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2366 E4	2662 D1	3005 D3	3408 D3	3657 D1	3805 B4	6314 E3	9012 C3	9963 E2	
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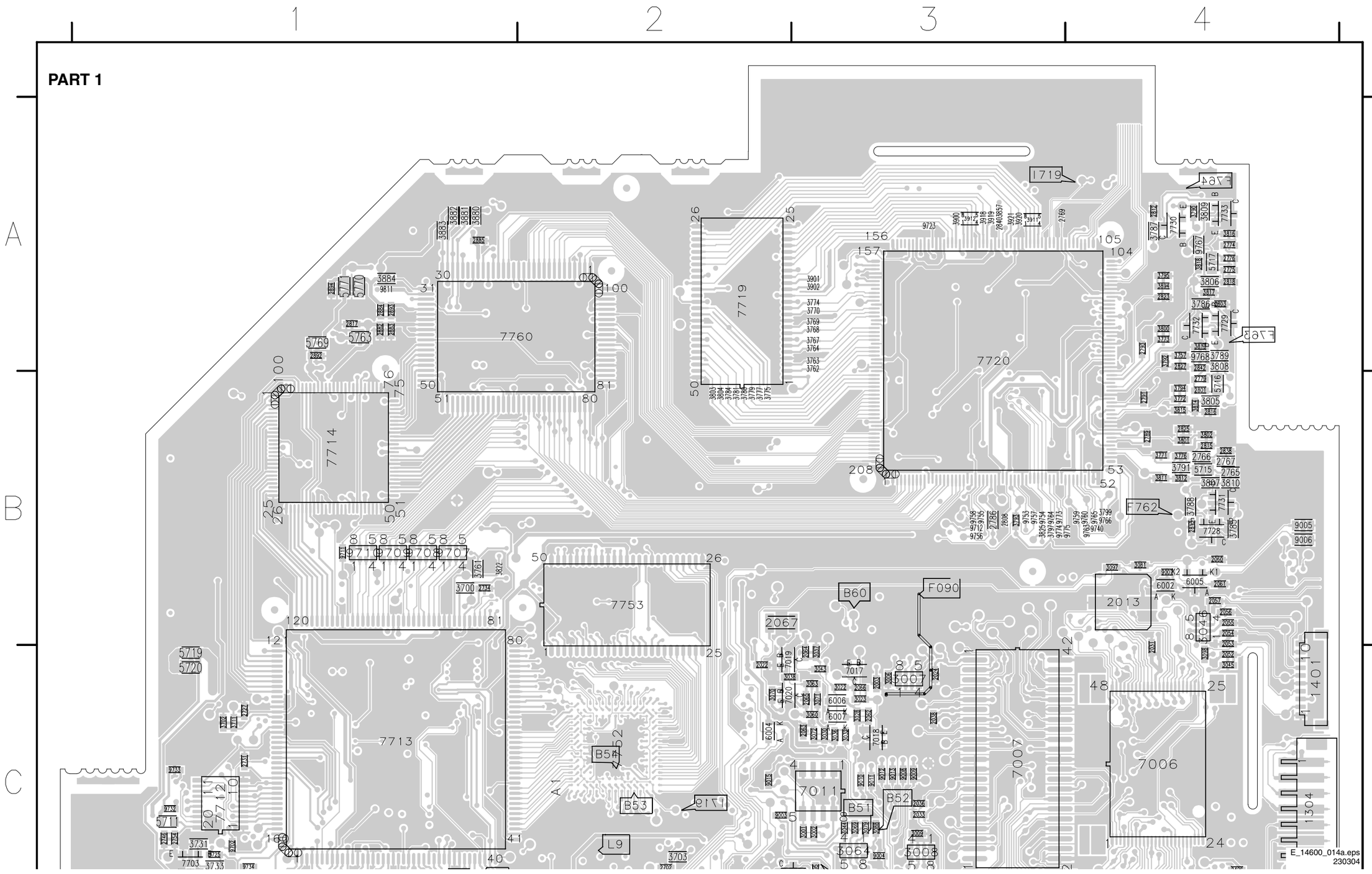
2375 E3	2681 D1	3014 D4	3420 D3	3667 E1	3811 B4	6651 D1	9311 D3		
2378 D4	2686 D1	3015 C4	3421 D4	3668 E1	3812 B4	6654 D1	9312 D3		
2384 E4	2690 D1	3016 D3	3434 D4	3669 D1	3813 A4	6660 E2	9313 E2		
2385 E3	2691 D1	3017 C3	3435 E4	3670 E1	3814 B4	6661 E2	9318 E3		
2386 E2	2694 D1	3022 C3	3441 D3	3671 E1	3815 B4	6926 E3	9319 E3		
2390 E4	2697 E1	3023 C3	3445 D4	3675 D1	3816 A4	6927 E3	9324 E3		
2392 E3	2698 E1	3028 C3	3446 E3	3676 D1	3817 A4	6928 E3	9401 D4		
2399 E4	2699 D1	3030 C3	3450 D3	3677 D1	3818 A4	6929 E3	9402 D4		
2402 E4	2700 C2	3032 C3	3451 E4	3680 D1	3822 B1	6956 E3	9403 D4		

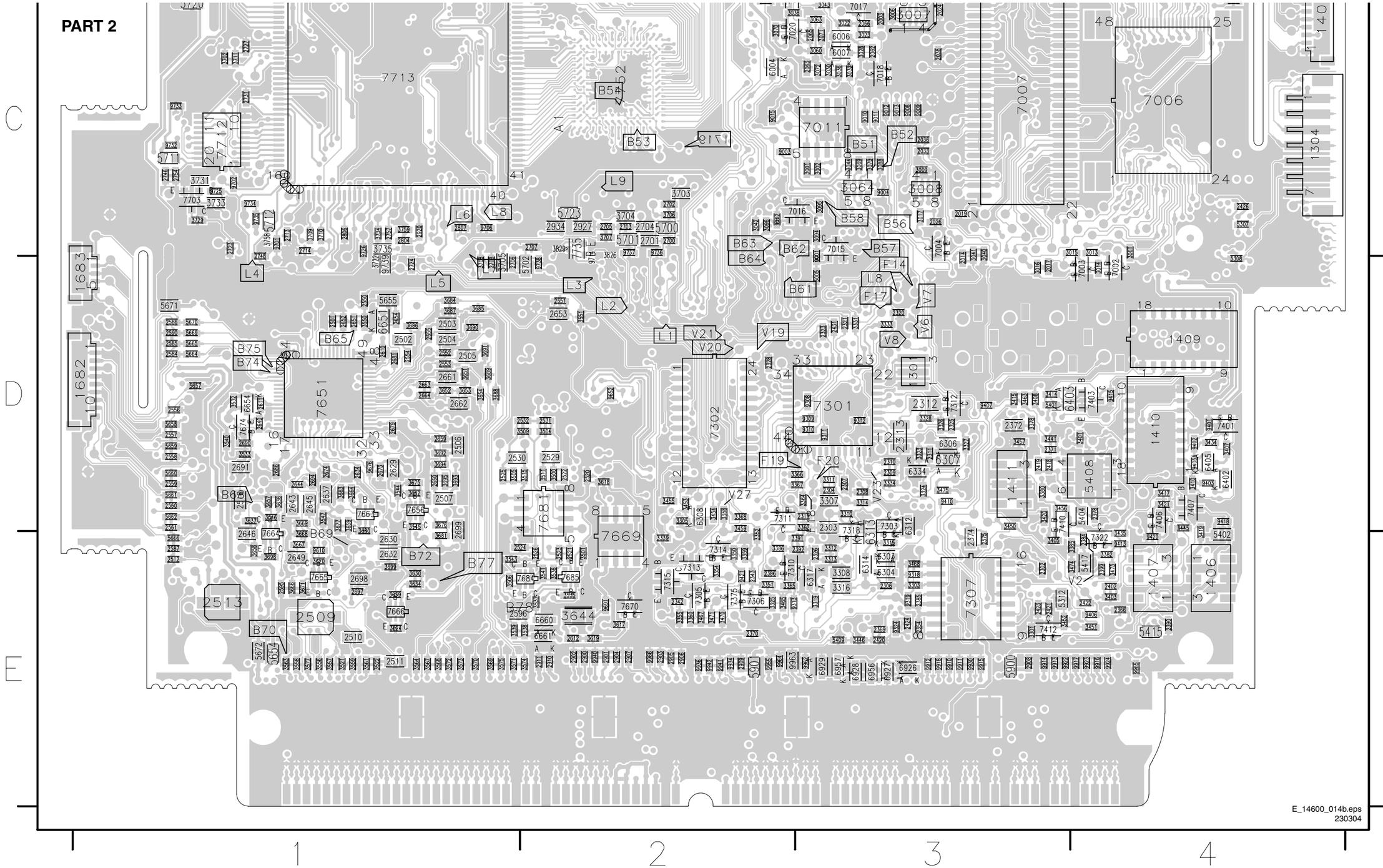
Layout Small Signal Board (Part 1 Bottom Side)

PART 1



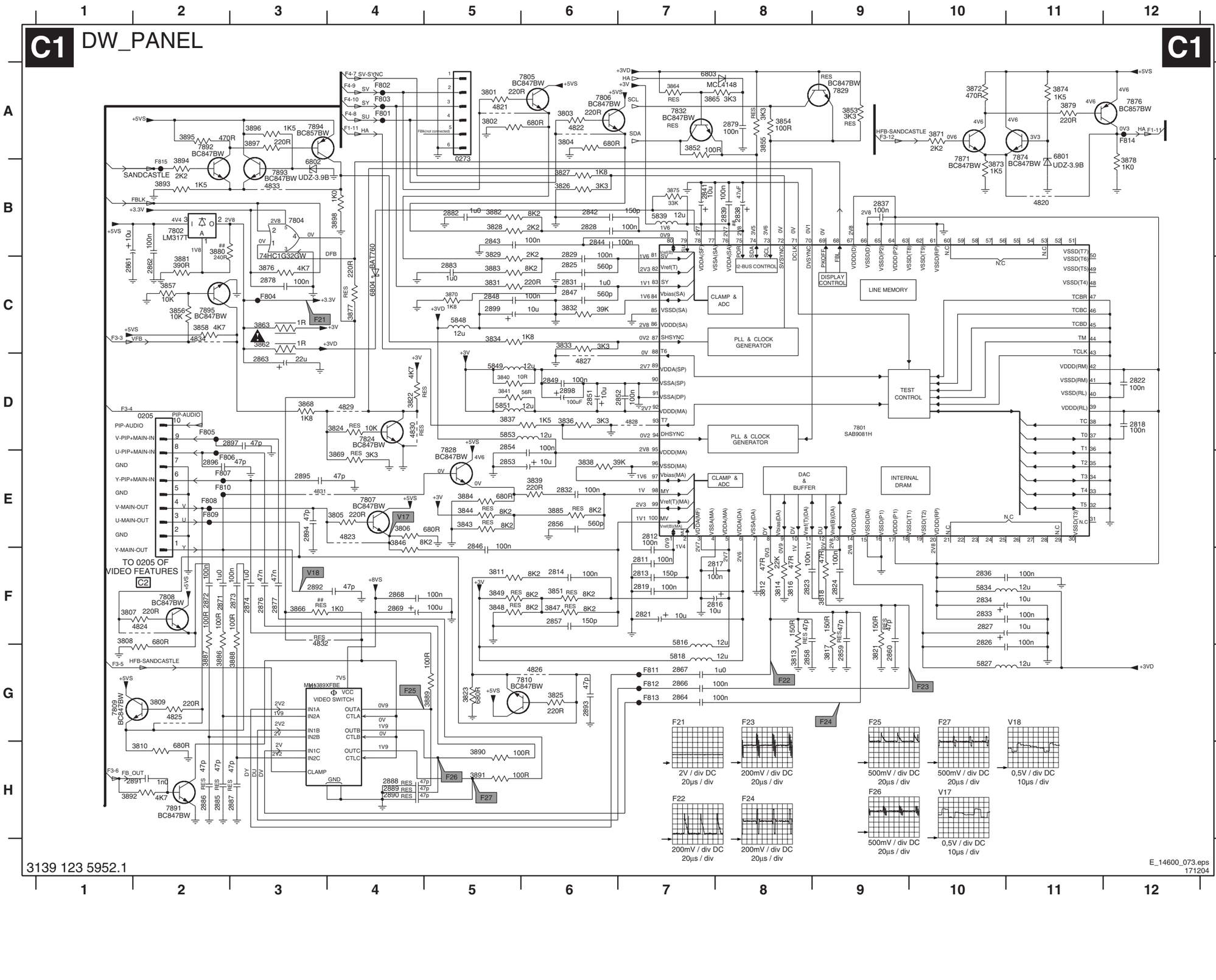
Layout Small Signal Board (Part 2 Bottom Side)

PART 2



Double Window Panel

C1 DW_PANEL



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0205 D2	3832 C6	7893 B3
0273 B5	3833 C6	7894 A3
2811 F7	3834 C5	7895 D2
2812 E7	3836 D6	F801 A4
2813 F7	3837 D5	F802 A4
2814 F6	3838 E6	F803 A4
2816 F8	3839 E6	F804 C3
2817 F8	3840 D5	F805 D2
2818 D12	3841 D5	F806 D2
2819 F7	3843 E5	F807 E2
2821 F7	3844 E5	F808 E2
2822 D12	3846 E4	F809 E2
2823 F8	3847 F6	F810 E2
2824 F9	3848 F5	F811 G7
2825 C6	3849 F5	F812 G7
2826 G10	3851 F6	F813 G7
2827 F10	3852 A7	F814 A12
2828 B6	3853 A9	F815 B2
2829 C6	3854 A8	
2831 C6	3855 A8	
2832 E6	3856 D2	
2833 F10	3857 C2	
2834 F10	3858 D2	
2836 F10	3862 D3	
2837 B9	3863 C3	
2838 B8	3864 A7	
2839 B8	3865 A7	
2841 B7	3866 F3	
2842 B6	3868 D3	
2843 B5	3869 E3	
2844 B6	3871 A10	
2846 F5	3872 A10	
2847 C6	3873 B10	
2848 C5	3874 A11	
2849 D6	3876 C3	
2851 D6	3877 C4	
2852 D7	3878 B12	
2853 E5	3879 A11	
2854 D5	3880 C2	
2856 E6	3881 C2	
2857 F6	3882 B5	
2858 G8	3883 C5	
2859 G9	3884 E5	
2860 G9	3885 E6	
2861 C1	3886 G2	
2862 C2	3887 G2	
2863 D3	3888 G3	
2864 G7	3889 G4	
2866 G7	3890 H5	
2867 G7	3891 H5	
2868 F4	3892 H1	
2869 F4	3893 B2	
2871 F2	3894 B2	
2872 F2	3895 A2	
2873 F3	3896 A3	
2874 F3	3897 B3	
2876 F3	3898 B4	
2877 F3	4820 B11	
2878 C3	4821 A5	
2879 A8	4822 A6	
2882 B5	4823 E4	
2883 C5	4824 F2	
2885 H2	4825 G2	
2886 H2	4826 G6	
2887 H2	4827 D6	
2888 H4	4828 D7	
2889 H4	4829 D3	
2890 H4	4830 D4	
2891 H2	4831 E3	
2892 F3	4832 G4	
2893 G6	4833 B3	
2894 E3	4834 D2	
2895 E3	5816 G7	
2896 E2	5818 G7	
2897 D3	5827 G10	
2898 D6	5834 F10	
2899 C5	5839 B7	
3801 A5	5848 C5	
3802 A5	5849 D5	
3803 A6	5851 D5	
3804 A6	5853 D5	
3805 E4	6801 A11	
3806 E4	6802 B3	
3807 F1	6803 A7	
3808 F1	6804 C4	
3809 G2	7801 D9	
3810 H2	7802 C2	
3811 F5	7803 G3	
3812 F8	7804 B3	
3813 G8	7805 A5	
3814 F8	7806 A6	
3816 F8	7807 E4	
3817 G9	7808 F2	
3818 F9	7809 G1	
3821 G9	7810 G5	
3822 D4	7824 D3	
3823 G5	7828 D5	
3824 D3	7829 A9	
3825 G6	7832 A7	
3826 B6	7871 B10	
3827 B6	7874 B11	
3828 B5	7876 A12	
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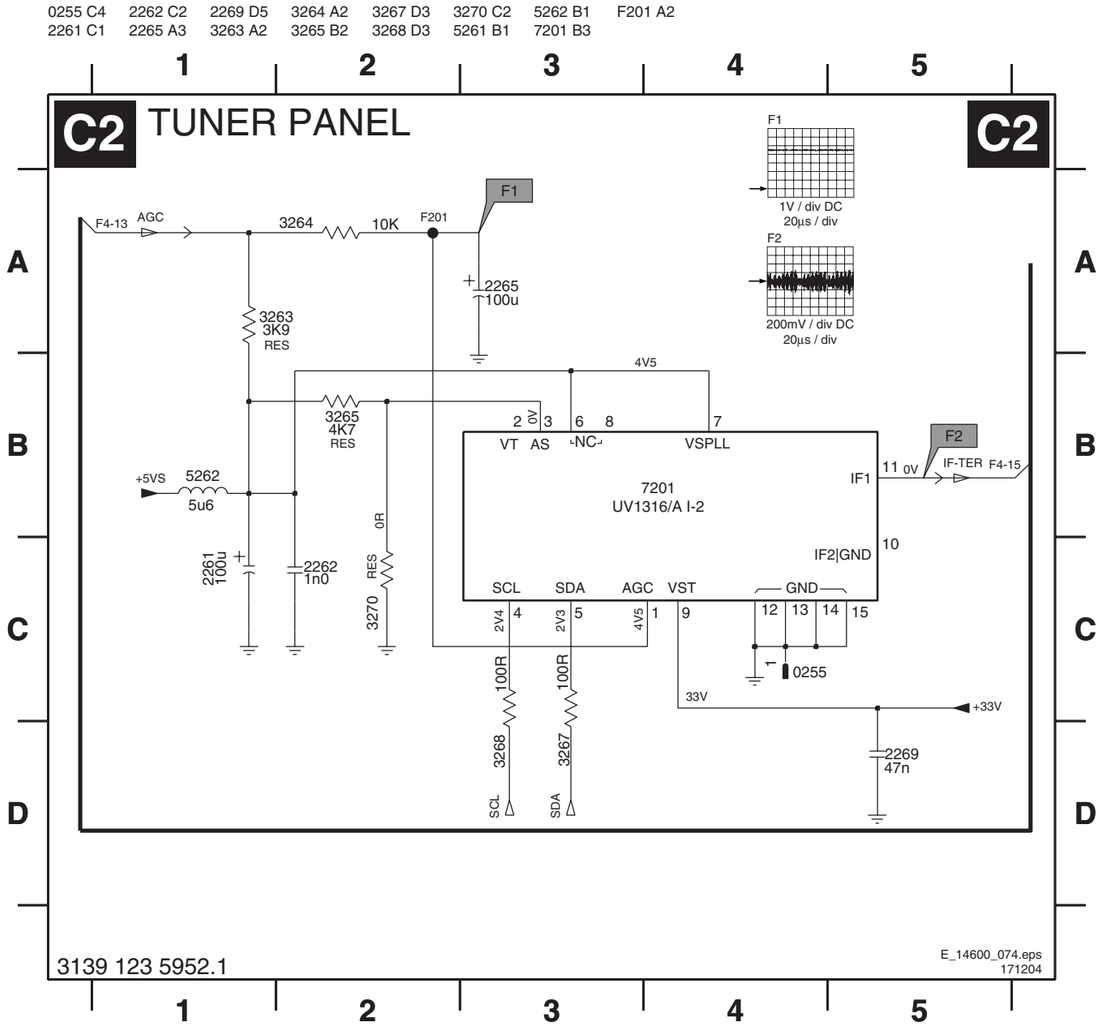
3831 C5	7892 B2	

Double Window Panel: Tuner



Personal Notes:

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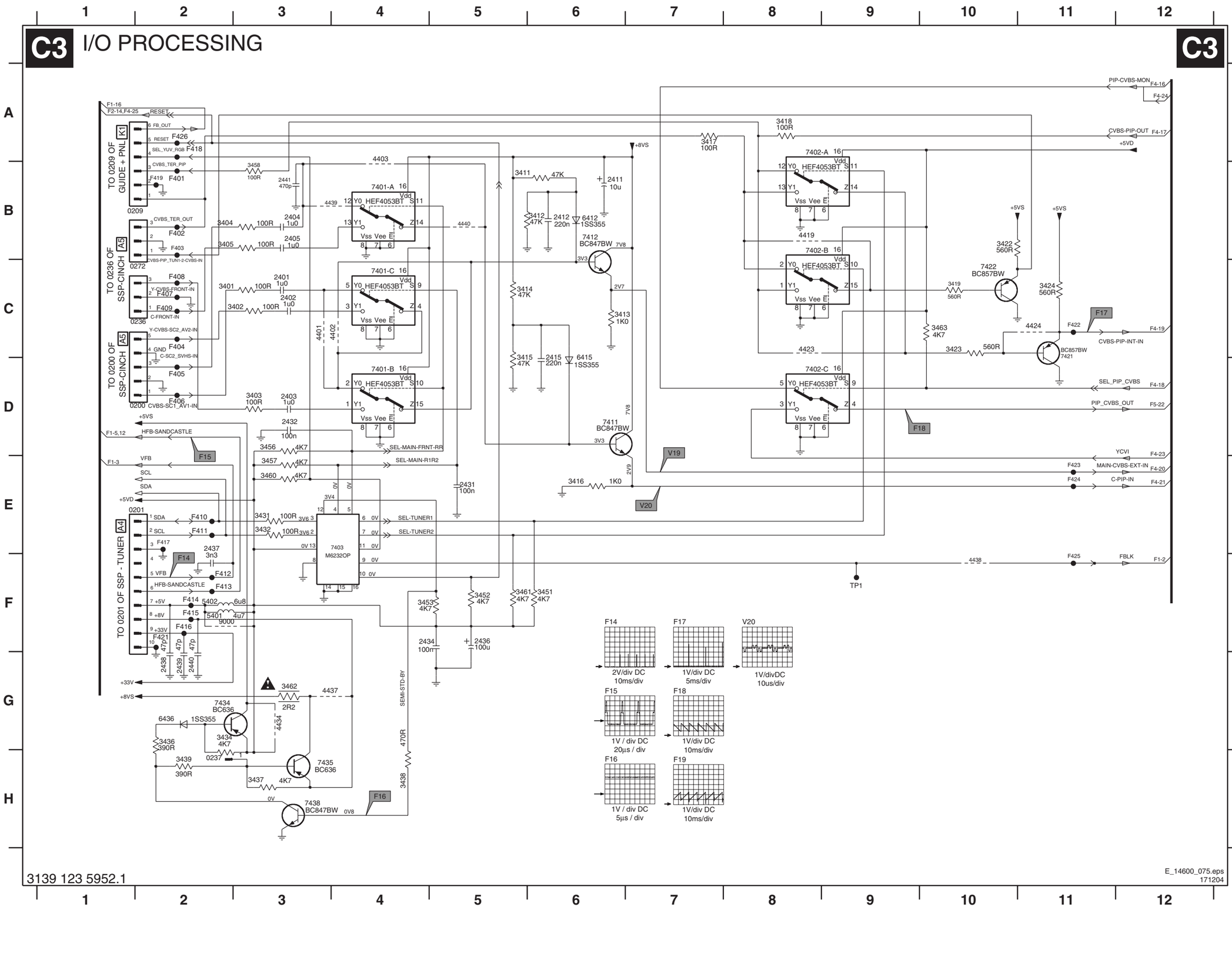
131004

Double Window Panel: I/O Processing

C3 I/O PROCESSING



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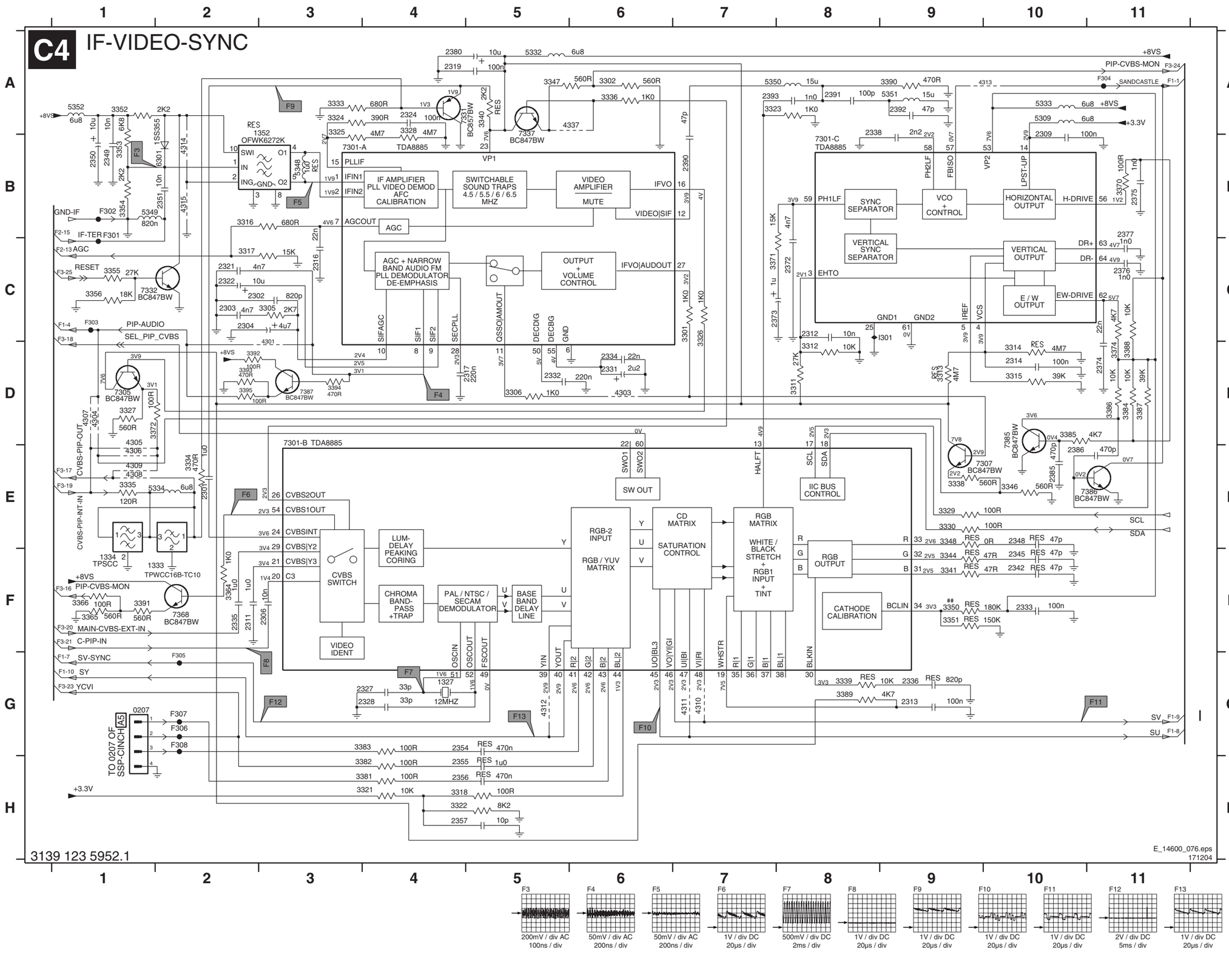
0201 E2
0209 B2
0236 C2
0237 H2
0272 C1
2401 C3
2402 C3
2403 D3
2404 B3
2405 B3
2411 B6
2412 B6
2415 C6
2431 E5
2432 D3
2434 F4
2436 F5
2437 E2
2438 G2
2439 G2
2440 G2
2441 B3
3401 C2
3402 C3
3403 D3
3404 B2
3405 B2
3411 B5
3412 B6
3413 C6
3414 C5
3415 C5
3416 E6
3417 A7
3418 A8
3419 C10
3422 B10
3423 C10
3424 C11
3431 E3
3432 E3
3434 G2
3436 G2
3437 H3
3438 H4
3439 H2
3451 F6
3452 F5
3453 F4
3456 D3
3457 E3
3458 B3
3460 E3
3461 F5
3462 G3
3463 C10
4401 C3
4402 C4
4403 B4
4419 B8
4423 C8
4424 C11
4434 G3
4437 G3
4438 F10
4439 B4
4440 B5
5401 F2
5402 F2
6412 B6
6415 C6
6436 G2
7401-A B4
7401-B D4
7401-C C4
7402-A A8
7402-B B8
7402-C D8
7403 E4
7411 D6
7412 B6
7421 C11
7422 C10
7434 G2
7435 H3
7438 H3
9401 F2
F401 B2
F402 B2
F403 B2
F404 C2
F405 D2
F406 D2
F407 C2
F408 C2
F409 C2
F410 E2
F411 E2
F412 F2
F413 F2
F414 F2
F415 F2
F416 F2
F417 E2
F418 A2
F419 B2
F421 F2
F422 C11
F423 E11
F424 E11
F425 F11
F426 A2

Double Window Panel: IF Video Sync



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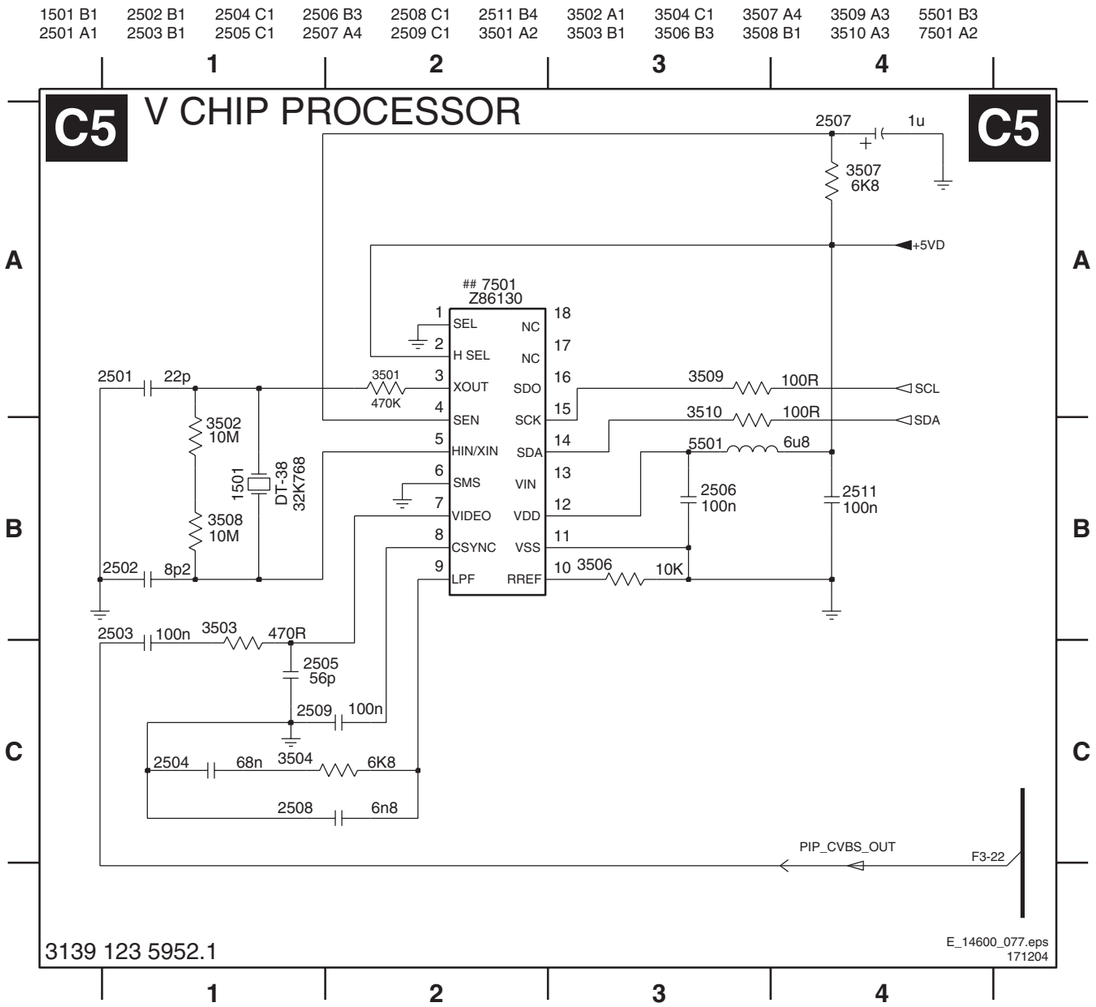
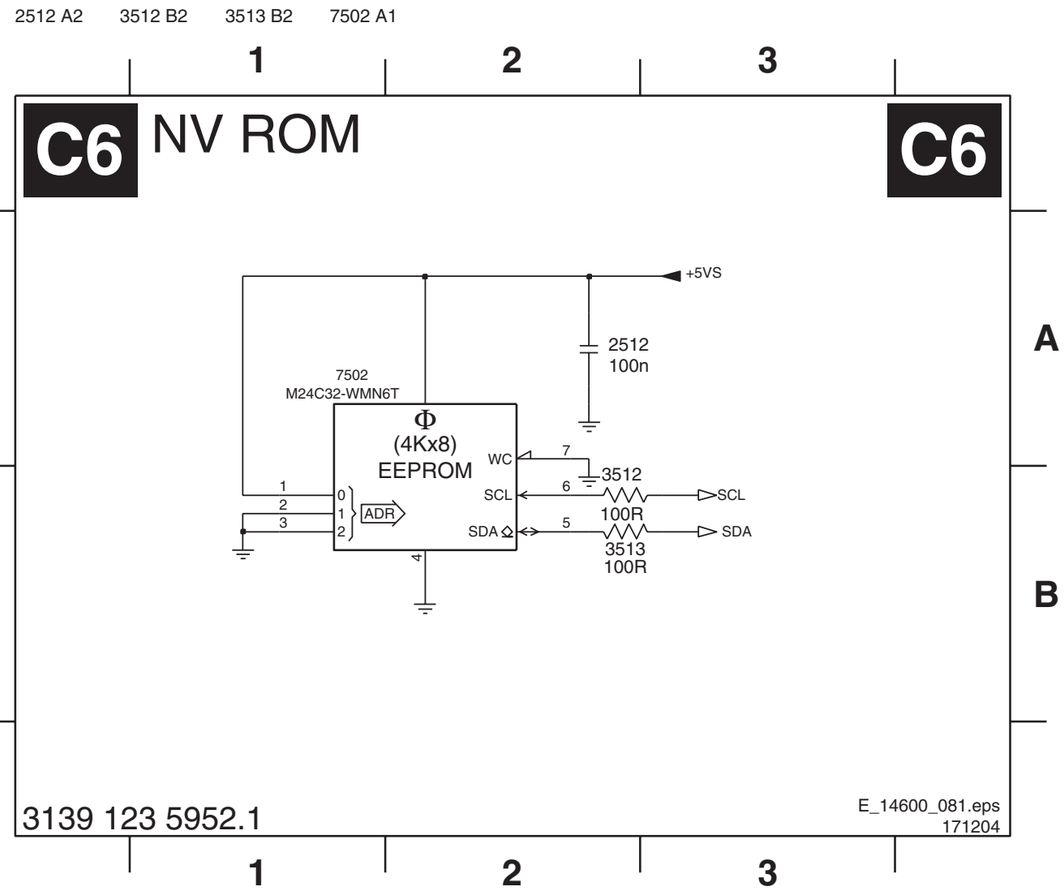
1327 G4	3370 B11
1333 F1	3371 C7
1334 F1	3372 D2
1352 B2	3374 D11
2301 E2	3381 H4
2302 C2	3382 H4
2303 C2	3383 G4
2304 C2	3384 D11
2306 F3	3385 D10
2309 B10	3386 D11
2311 F2	3387 D11
2312 C8	3388 D11
2313 G9	3389 G8
2314 D10	3390 A9
2316 C3	3391 F1
2317 D5	3392 D2
2319 A4	3393 D2
2321 C2	3394 D3
2322 C2	3395 D2
2324 A4	4301 D3
2327 G4	4303 D6
2328 G4	4304 D1
2331 D6	4305 D1
2332 D5	4306 E1
2333 F10	4307 D1
2334 D6	4308 E1
2335 F2	4309 E1
2336 G9	4310 G7
2338 A8	4311 G7
2342 F10	4312 G5
2345 F10	4313 A10
2348 E10	4314 B2
2349 B1	4315 B2
2350 B1	4337 A6
2351 B2	5309 A10
2354 G4	5332 A5
2355 H4	5333 A10
2356 H4	5334 E2
2357 H4	5348 B3
2372 C8	5349 B1
2373 C8	5350 A7
2374 D11	5351 A9
2375 B11	5352 A1
2376 C11	6301 B2
2377 B11	7301-A B3
2380 A4	7301-B E3
2385 E10	7301-C B8
2386 E10	7305 D1
2390 B7	7307 E10
2391 A8	7331 A4
2392 A9	7332 C1
2393 A7	7337 A5
3301 C7	7368 F2
3302 A6	7385 D10
3305 C3	7386 E11
3306 D5	7387 D3
3311 D8	F301 B1
3312 D8	F302 B1
3313 D9	F303 C1
3314 D10	F304 A11
3315 D10	F305 G2
3316 B2	F306 G2
3317 C2	F307 G2
3318 H4	F308 G2
3321 H4	I301 C9
3322 H4	
3323 A7	
3324 A3	
3325 A3	
3326 C7	
3327 D1	
3328 A4	
3329 E9	
3330 E9	
3333 A3	
3334 E2	
3335 E1	
3336 A6	
3338 E9	
3339 G8	
3340 A5	
3341 F9	
3344 F9	
3346 E10	
3347 A5	
3348 E9	
3350 F9	
3351 F9	
3352 A1	
3353 B1	
3354 B1	
3355 C1	
3356 C1	
3364 F2	
3365 F1	

F3 200mV / div AC 100ns / div
F4 50mV / div AC 200ns / div
F5 50mV / div AC 200ns / div
F6 1V / div DC 20µs / div
F7 500mV / div DC 2ms / div
F8 1V / div DC 20µs / div
F9 1V / div DC 20µs / div
F10 1V / div DC 20µs / div
F11 1V / div DC 20µs / div
F12 2V / div DC 5ms / div
F13 1V / div DC 20µs / div

Double Window Panel V-Chip Processor



Double Window Panel NV ROM



Layout Double Window Panel (Top Side)

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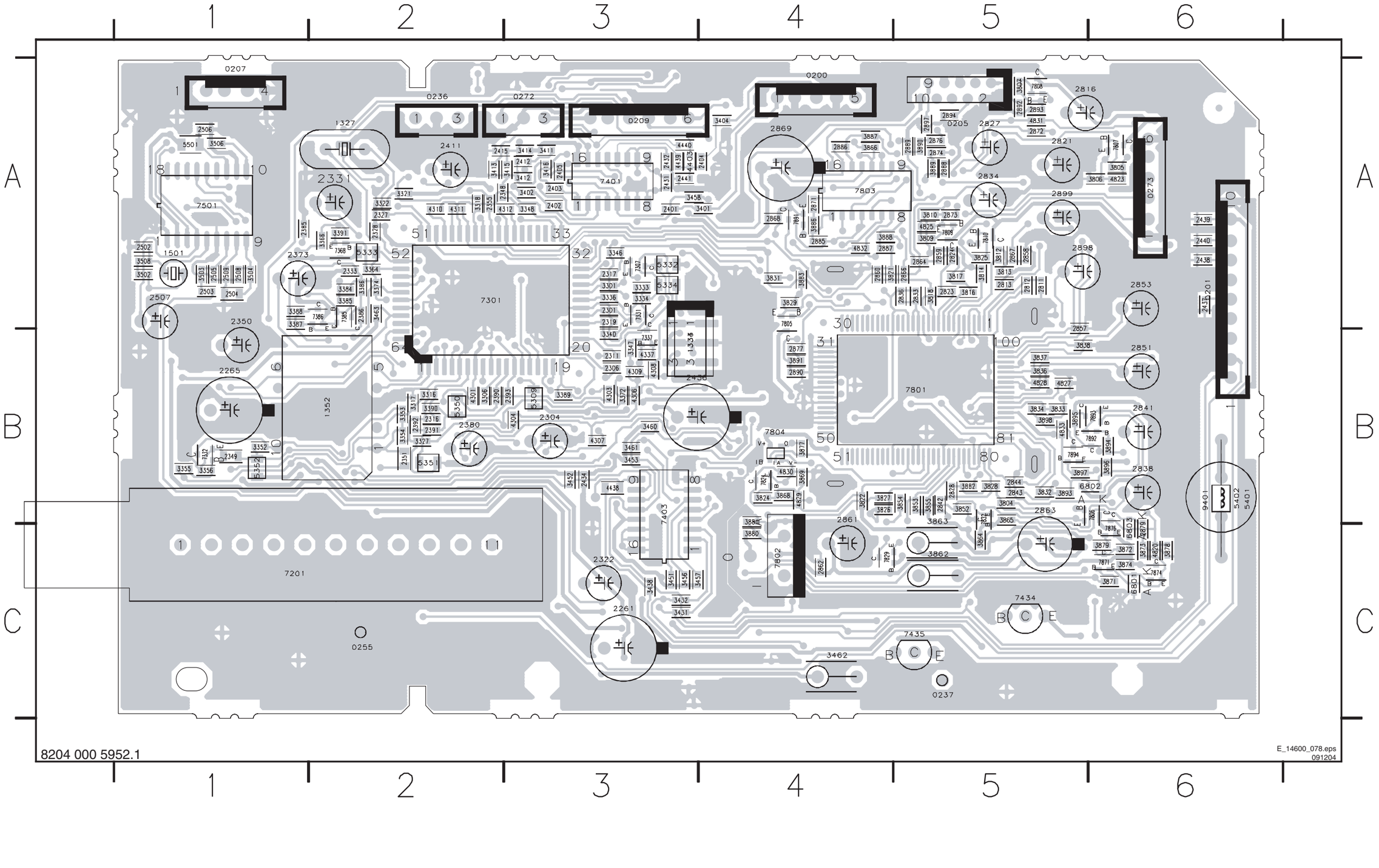
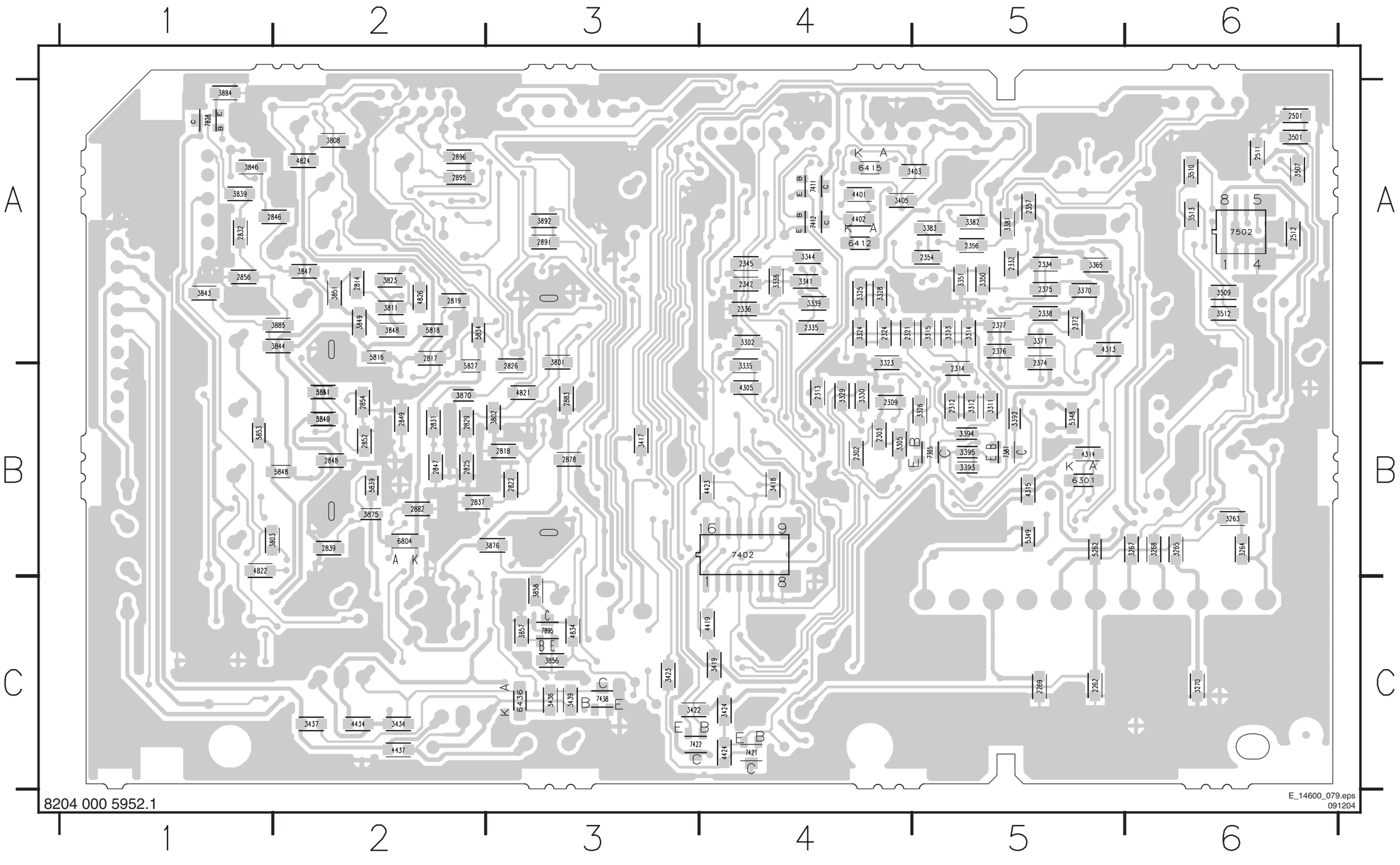
0201 A6 1334 B3 2319 A3 2373 A1 2404 A4 2439 A6 2811 A5 2836 A5 2860 A4 2873 A5 2892 A5 3321 A2 3353 B2 3387 A1 3414 A3 3458 A3 3805 A6 3821 A4 3834 B5 3865 B5 3880 C4 3894 B6 4309 B3 4825 A5 5334 A3 7301 A2 7435 C5 7810 A5 9401 B6
0205 A5 1352 B2 2322 C3 2380 B2 2405 A3 2440 A6 2812 A5 2838 B6 2861 B4 2874 A5 2893 A5 3322 A2 3354 B2 3388 A1 3415 A3 3460 B3 3806 A6 3822 B4 3836 B5 3866 A4 3881 B4 3895 B5 4310 A2 4827 B5 5350 B2 7307 A3 7501 A1 7824 B4
0207 A1 1501 A1 2327 A2 2385 A1 2411 A2 2441 A3 2813 A5 2841 B6 2862 C4 2876 A5 2894 A5 3327 B2 3355 B1 3389 B3 3416 A3 3461 B3 3807 A5 3824 B4 3837 B5 3868 B4 3882 B5 3896 B6 4311 A2 4828 B5 5351 B2 7331 A3 7801 B5 7829 C4
0209 A3 2261 C3 2328 A2 2386 A2 2412 A3 2502 A1 2816 A5 2842 B5 2863 B5 2877 B4 2897 A5 3333 A3 3356 B1 3390 B2 3431 C3 3462 C4 3809 A5 3825 A5 3838 B5 3869 B4 3883 A4 3897 B5 4312 A3 4829 B4 5352 B1 7332 B1 7802 C4 7832 B5
0236 A2 2265 B1 2331 A2 2390 B2 2415 A2 2503 A1 2821 A5 2843 B5 2864 A5 2879 C6 2898 A5 3334 A3 3364 A2 3391 A2 3432 C3 3463 A2 3810 A5 3826 B4 3852 B5 3871 C6 3886 A4 3898 B5 4337 B3 4830 B4 5401 B6 7337 B3 7803 A4 7871 C6
0237 C5 2301 A3 2333 A2 2391 B2 2431 A3 2504 A1 2823 A5 2844 B5 2866 A5 2885 A4 2899 A5 3336 A3 3366 A2 3401 A4 3438 C3 3502 A1 3812 A5 3827 B4 3853 B5 3872 C6 3887 A4 4301 B2 4403 A3 4831 A5 5402 B6 7368 A2 7804 B4 7874 C6
0255 C2 2304 B3 2348 A2 2392 B2 2432 A3 2505 A1 2824 A5 2851 B6 2867 A5 2886 A4 3301 A3 3340 B3 3372 B3 3402 A3 3451 C3 3503 A1 3813 A5 3828 B5 3854 B5 3873 C6 3888 A4 4303 B3 4438 B3 4832 A4 5501 A1 7385 A2 7805 A4 7876 C6
0272 A3 2306 B3 2349 B1 2393 B3 2434 B3 2506 A1 2827 A5 2853 A6 2868 A4 2887 A4 3306 B2 3346 A3 3374 A2 3404 A4 3452 B3 3504 A1 3814 A5 3829 A4 3855 B5 3874 C6 3889 A5 4304 B3 4439 A3 4833 B5 6801 C6 7386 A2 7806 B6 7891 A4
0273 A6 2311 B3 2350 A1 2401 A3 2436 B3 2507 A1 2828 B5 2857 A5 2869 A4 2888 A5 3316 B2 3347 B3 3384 A2 3411 A3 3453 B3 3506 A1 3816 A5 3831 A4 3862 C5 3877 B4 3890 A5 4306 B3 4440 A3 5309 B3 6802 B6 7401 A3 7807 A6 7892 B6
1327 A2 2316 B2 2351 B2 2402 A3 2437 A6 2508 A1 2833 A5 2858 A5 2871 A4 2889 A5 3317 B2 3348 A3 3385 A2 3412 A3 3456 C3 3508 A1 3817 A5 3832 B5 3863 B5 3878 C6 3891 B4 4307 B3 4820 C6 5332 A3 6803 C6 7403 B3 7808 A5 7893 B6

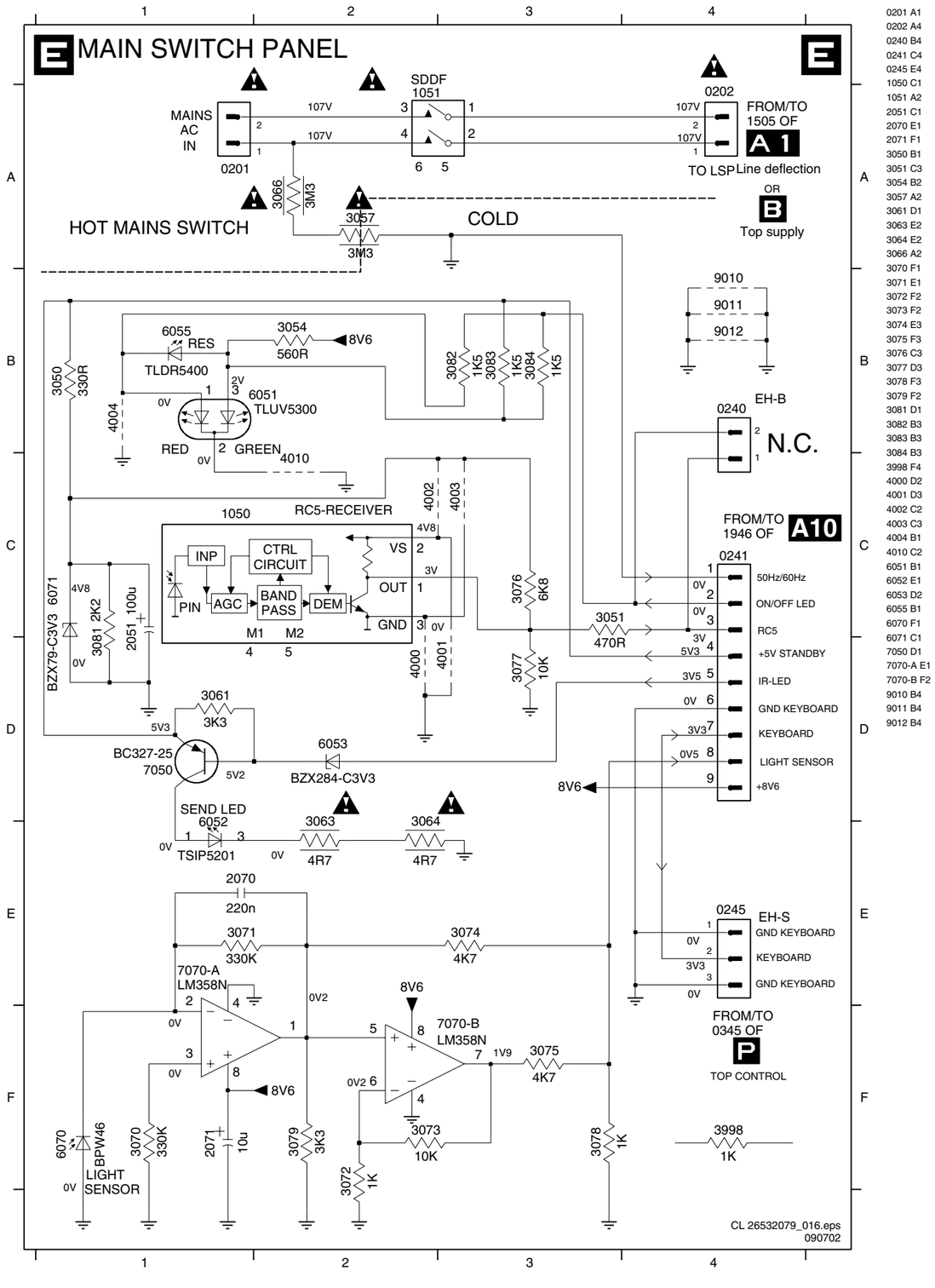


Layout Double Window Panel (Bottom Side)

2262	C5	2314	B5	2338	A5	2374	A5	2814	A2	2829	B2	2848	B2	2883	B3	3267	B6	3313	A5	3328	A4	3344	A4	3382	A5	3405	A4	3434	C2	3510	A6	3811	A2	3846	A1	3858	C3	4305	B4	4423	B4	4826	A2	5827	B2	6301	B5	7402	B4	7828	A1
2269	C5	2321	A4	2342	A4	2375	A5	2817	A2	2831	B2	2849	B2	2891	A3	3268	B6	3314	A5	3329	B4	3350	A5	3383	A5	3417	B3	3436	C3	3512	A6	3823	A2	3847	A2	3870	B2	4313	A5	4424	C4	4834	C3	5834	A2	6412	A4	7411	A4	7895	C3
2302	B4	2324	A4	2345	A4	2376	A5	2818	B3	2832	A1	2852	B2	2895	A2	3270	C6	3315	A5	3330	B4	3351	A5	3392	B5	3418	B4	3437	C2	3513	A6	3839	A1	3848	A2	3875	B2	4314	B5	4434	C2	5262	B5	5839	B2	6415	A4	7412	A4		
2303	B4	2332	A5	2354	A5	2377	A5	2819	A2	2837	B2	2854	B2	2896	A2	3302	A4	3323	A4	3335	B4	3365	A5	3393	B5	3419	C4	3439	C3	3801	A3	3840	B2	3849	A2	3876	B3	4315	B5	4437	C2	5348	B5	5848	B2	6436	C3	7421	C4		
2309	B4	2334	A5	2356	A5	2501	A6	2822	B3	2839	B2	2856	A1	3263	B6	3305	B4	3324	A4	3338	A4	3370	A5	3394	B5	3422	C3	3501	A6	3802	B3	3841	B2	3851	A2	3884	A1	4401	A4	4821	B3	5349	B5	5849	B2	6804	B2	7422	C3		
2312	B5	2335	A4	2357	A5	2511	A6	2825	B2	2846	A2	2878	B3	3264	B6	3311	B5	3325	A4	3339	A4	3371	A5	3395	B5	3423	C3	3507	A6	3803	B1	3843	A1	3856	C3	3885	A2	4402	A4	4822	B1	5816	A2	5851	B2	7305	B5	7438	C3		
2313	B4	2336	A4	2372	A5	2512	A6	2826	B3	2847	B2	2882	B2	3265	B6	3312	B5	3326	B5	3341	A4	3381	A5	3403	A5	3424	C4	3509	A6	3808	A2	3844	A2	3857	C3	3892	A3	4419	C4	4824	A2	5818	A2	5853	B1	7387	B5	7502	A6		



Main Switch Panel



0201 A1
0202 A4
0240 B4
0241 C4
0245 E4
1050 C1
1051 A2
2051 C1
2070 E1
2071 F1
3050 B1
3051 C3
3054 B2
3057 A2
3061 D1
3063 E2
3064 E2
3066 A2
3070 F1
3071 E1
3072 F2
3073 F2
3074 E3
3075 F3
3076 C3
3077 D3
3078 F3
3079 F2
3081 D1
3082 B3
3083 B3
3084 B3
3998 F4
4000 D2
4001 D3
4002 C2
4003 C3
4004 B1
4010 C2
6051 B1
6052 E1
6053 D2
6055 B1
6070 F1
6071 C1
7050 D1
7070-A E1
7070-B F2
9010 B4
9011 B4
9012 B4

Personal Notes:

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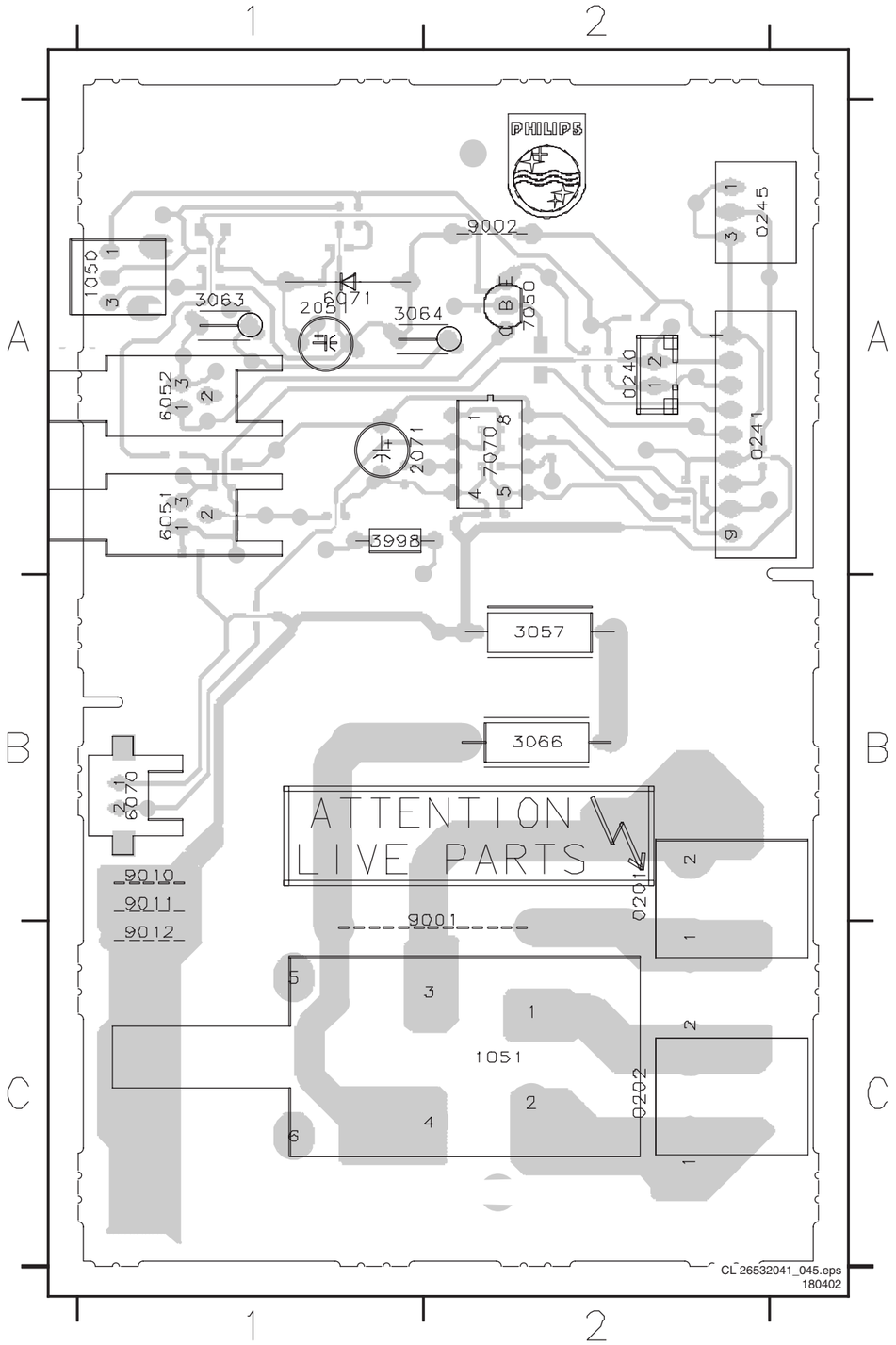
131004

Layout Main Switch Panel (Top Side)



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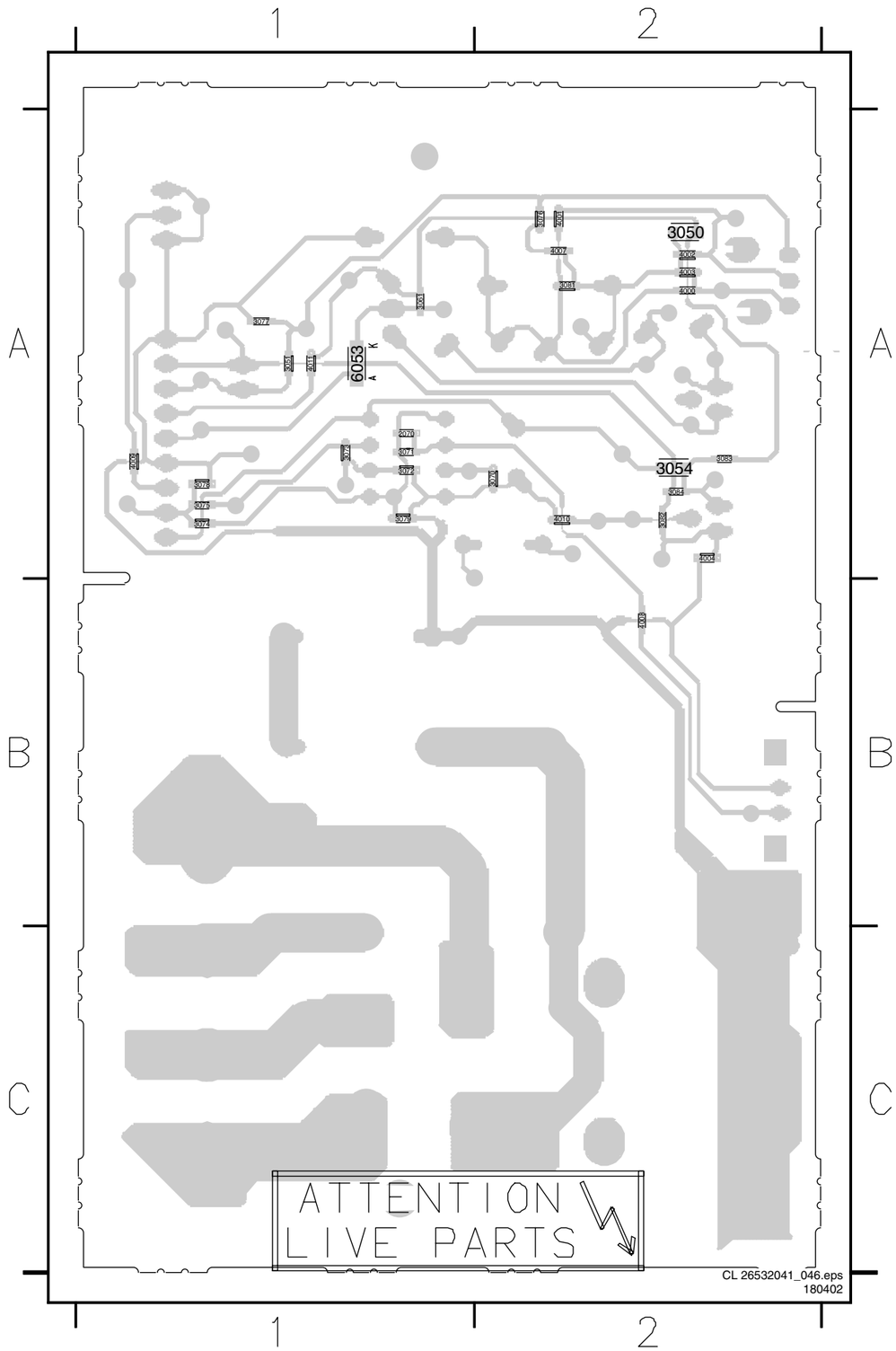
0202 C2
0240 A2
0241 A2
0245 A2
1050 A1
1051 C2
2051 A1
2071 A1
3057 B2
3063 A1
3064 A2
3066 B2
3998 A1
6051 A1
6052 A1
6070 B1
6071 A1
7050 A2
7070 A2
9001 B2
9002 A2
9010 B1
9011 B1
9012 C1

Layout Main Switch Panel (Bottom Side)



2070 A1
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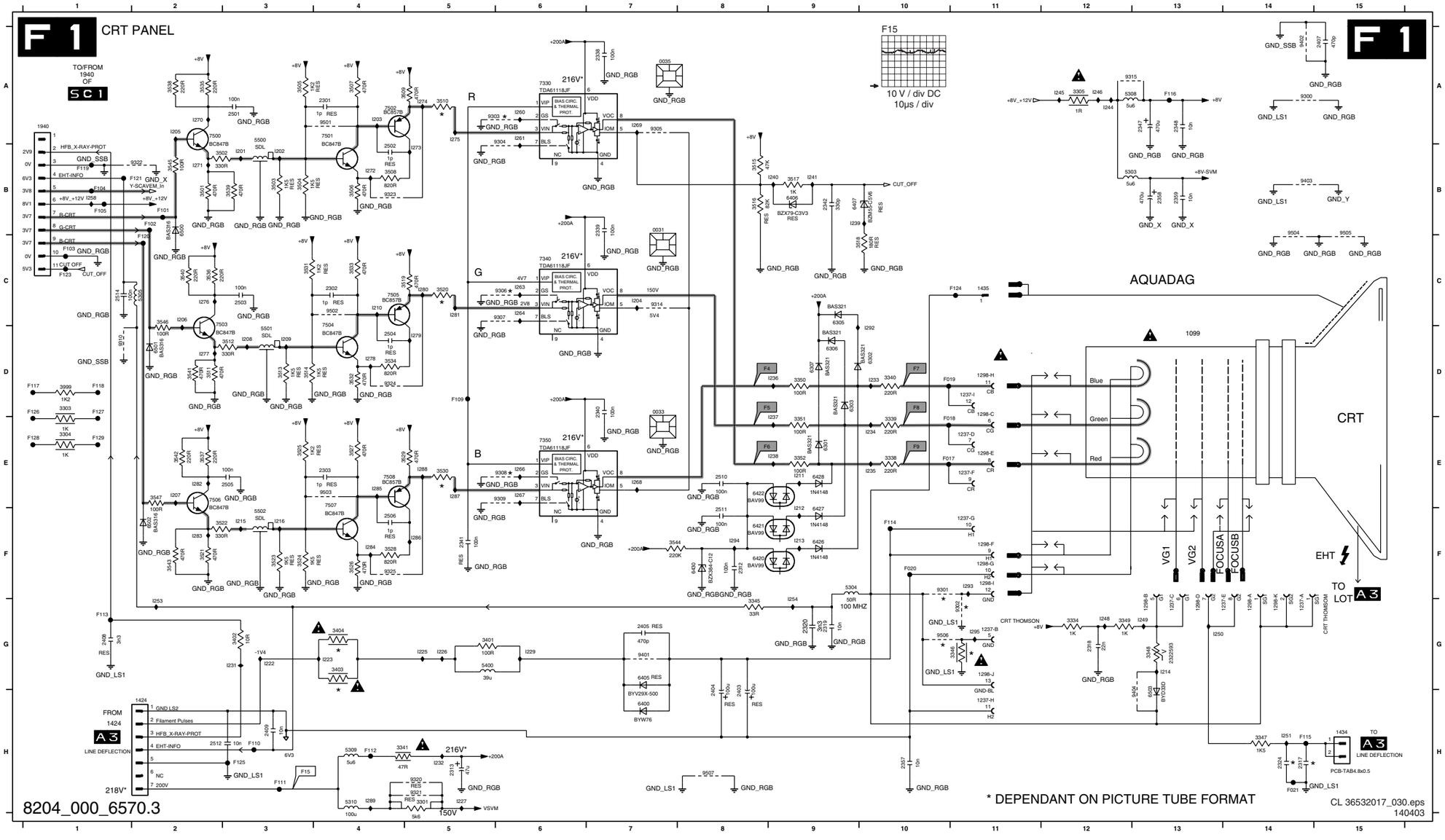
3051 A1
3054 A2
3061 A1
3070 A2
3071 A1
3072 A1
3073 A1
3074 A1
3075 A1
3076 A2
3077 A1
3078 A1
3079 A1
3081 A2
3082 A2
3083 A2
3084 A2
4000 A2
4001 A2
4002 A2
4003 A2
4004 A2
4007 A2
4008 B2
4009 A1
4010 A2
4011 A1
6053 A1

CRT Panel

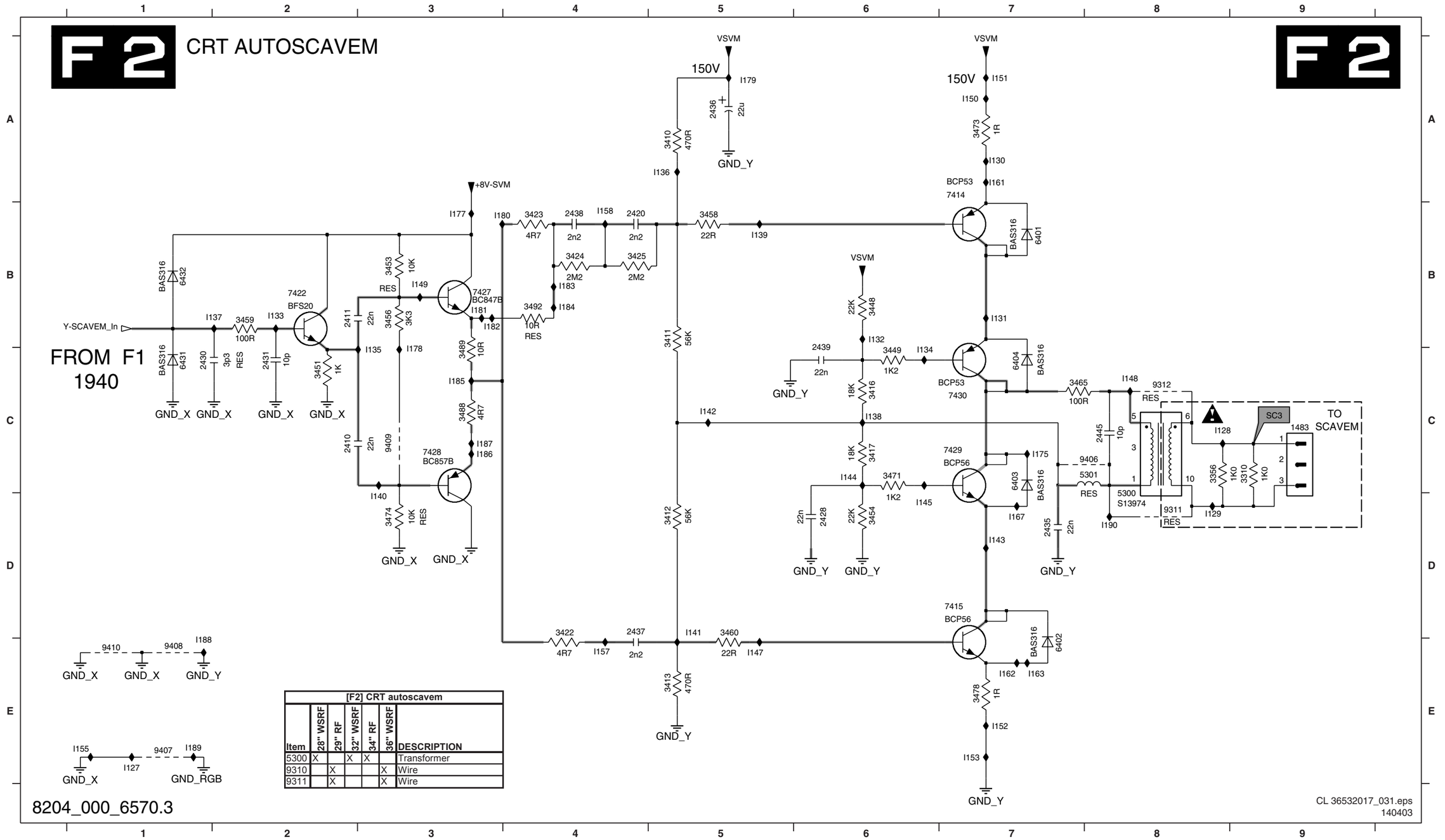
0031 B7	1237-I D11	1298-K F14	2318 G12	2357 H10	2503 C3	3305 A12	3350 D9	3505 A3	3516 B8	3527 E4	3538 A2	5303 B12	6302 D10	6422 E8	7350 E6	9301 F10	9315 A12	9501 A4	F021 H14	F114 F10	F126 D1	I208 D3	I225 G5	I238 E9	I253 G2	I270 A2	I281 C5	I292 D10
0033 D7	1298-A F14	1424 H2	2319 G9	2358 B13	2504 D4	3334 G12	3351 E9	3506 B4	3517 B9	3528 F4	3539 B3	5304 F9	6303 D9	6426 F9	7500 A2	9302 G11	9320 H5	9502 C4	F101 B2	F115 H14	F127 D1	I209 D3	I226 G5	I239 B9	I254 G9	I271 B2	I282 E2	I293 F11
0035 A7	1298-B F13	1434 H15	2320 G9	2359 B13	2505 E3	3338 E10	3352 E9	3507 A4	3518 C10	3529 E5	3540 C2	5305 C2	6305 C9	6427 F9	7501 A4	9303 A5	9321 H5	9503 E4	F102 B2	F116 A13	F128 E1	I210 C4	I227 H5	I240 B9	I258 B1	I272 B4	I283 F2	I294 F8
1237-A F14	1298-C D11	1435 C11	2324 H14	2403 H8	2506 F4	3339 E10	3401 G5	3508 B4	3519 C5	3530 E5	3541 D2	5308 A12	6306 D9	6428 E9	7502 A4	9304 A6	9322 B2	9504 B14	F103 C1	F117 D1	F129 E1	I211 E9	I229 G6	I241 B9	I260 A6	I273 B5	I284 F4	I295 G11
1237-B G11	1298-D F13	1940 A1	2338 A7	2404 H8	2510 E8	3340 D10	3402 G3	3509 A5	3520 C5	3531 C3	3542 E2	5309 H4	6307 D9	6430 F8	7503 D2	9305 A7	9323 B4	9505 B15	F104 B1	F118 D1	I201 B3	I212 F9	I231 G3	I244 A12	I261 A6	I274 B5	I285 E4	
1237-C F13	1298-E E11	2301 A4	2339 B7	2405 G7	2511 F8	3341 H4	3403 G4	3510 A5	3521 F2	3532 D4	3543 F2	5310 H4	6400 H7	6500 B2	7504 D4	9306 C6	9324 D4	9506 G10	F105 B1	F119 B1	I202 B3	I213 F9	I232 H5	I245 A12	I263 C6	I275 A5	I286 F5	
1237-D E11	1298-F F11	2302 C4	2340 D7	2407 A15	2512 H2	3345 G8	3404 G4	3511 D2	3522 F2	3533 C4	3544 F7	5400 G5	6405 G7	6501 D2	7505 C4	9307 C6	9325 F4	9507 H8	F109 D5	F120 C2	I203 A4	I214 G13	I233 D10	I246 A12	I264 C6	I276 C2	I287 E5	
1237-E F14	1298-G F11	2303 E4	2341 F5	2408 G1	2514 C1	3346 G11	3501 B2	3512 D3	3523 F3	3534 D4	3545 B2	5500 A3	6406 B9	6502 F2	7506 E2	9308 E6	9401 G7	F017 E10	F110 H3	F121 B2	I204 C7	I215 F3	I234 E10	I248 G12	I266 E6	I277 D2	I288 E5	
1237-F E11	1298-H D11	2312 F8	2342 B9	2409 H3	3301 H5	3347 H14	3502 B2	3513 D3	3524 F3	3535 A2	3546 C2	5501 D3	6407 B9	6503 H13	7507 E4	9309 E6	9402 A14	F018 E10	F111 H3	F123 C1	I205 A2	I216 F3	I235 E10	I249 G13	I267 E6	I278 D4	I289 H4	
1237-G F11	1298-I F11	2313 H5	2347 A13	2501 A3	3303 D1	3348 G13	3503 B3	3514 D3	3525 E3	3536 C2	3547 E2	5502 F3	6420 F8	7330 A6	7508 E4	9310 D1	9403 B14	F019 D10	F112 H4	F124 C11	I206 C2	I223 G4	I236 D9	I250 G13	I268 E7	I279 D5	I290 D9	
1237-H H11	1298-J G11	2317 H14	2348 A13	2502 B4	3304 E1	3349 G12	3504 B3	3515 B8	3526 F4	3537 E2	3999 D1	6301 E9	6421 F8	7340 C6	9300 A14	9314 C7	9404 H13	F020 F10	F113 G1	F125 H3	I207 E2	I223 G4	I237 E9	I251 H14	I269 A7	I280 C5	I291 D9	



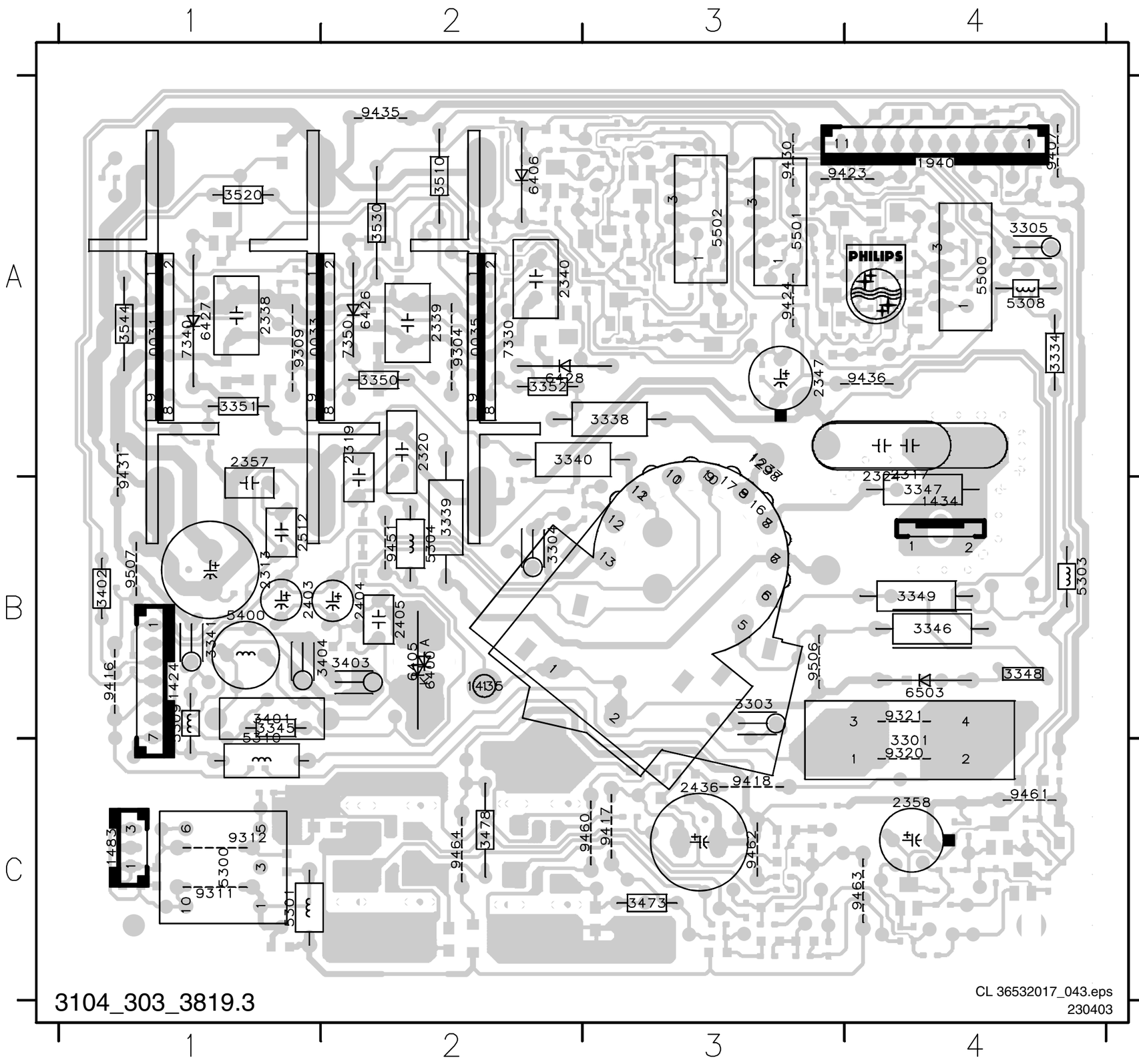
[F1] CRT panel						
Item	28" WSRF	29" RF	32" WSRF	34" RF	36" WSRF	DESCRIPTION
1237				X		CRT socket 9p female
1298	X	X			X	CRT socket 10p female
1298			X			CRT socket 11p female
2324	X					1N
2324			X			1N5
2324		X		X	X	4N7
2403		X		X	X	100U
2404		X		X	X	100U
2405		X		X	X	470P
3303				X		FUSE 1K
3304	X	X	X		X	FUSE 1K
3402	X		X		X	10R
3402		X		X		150R
3403		X			X	FUSE 1R
3403				X		FUSE 1R5
3403	X		X			FUSE 1R
3404		X			X	FUSE 1R
3404				X		FUSE 1R5
3510					X	100R
3510	X		X			150R
3510				X		220R
3510		X				560R
3520	X				X	150R
3520				X		220R
3520			X			390R
3520		X				560R
3530	X					150R
3530				X		220R
3530					X	270R
3530			X			390R
3530		X				560R
3999				X		1K5
3999	X					1K8
3999		X				2K2
3999					X	2K7
3999			X			3K9
5400	X		X			33U
5400				X		18U
5400		X				27U
5400					X	39U
6405		X			X	X BYV29X-500
9301	X	X			X	X Jumper
9302			X			Jumper
9303	X	X	X			X Jumper
9306	X	X	X			X Jumper
9308	X	X	X			X Jumper
9401	X		X			Jumper

CRT/ Auto SCAVEM Panel

1483 C9	2430 C1	2438 B4	3410 A5	3417 C6	3448 B6	3456 B3	3471 C6	3489 C3	6402 E7	7414 A7	7429 C7	9407 E1	I128 C8	I133 B2	I138 C6	I143 D7	I149 B3	I155 E1	I163 E7	I179 A5	I184 B4	I189 E1	
2410 C2	2431 C2	2439 B6	3411 B5	3422 D4	3449 C6	3458 B5	3473 A7	3492 B4	6403 C7	7415 D7	7430 C7	9408 E1	I129 D8	I134 C6	I139 B5	I144 C6	I150 A7	I157 E4	I167 D7	I180 B3	I185 C3	I190 D8	
2411 B2	2435 D7	2445 C8	3412 D5	3423 B4	3451 C2	3459 B2	3474 D3	5300 D8	6404 C7	7422 B2	9311 D8	9409 C3	I130 A7	I135 C3	I140 D3	I145 D6	I151 A7	I158 B4	I175 C7	I181 B3	I186 C3		
2420 B4	2436 A5	3310 C9	3413 E5	3424 B4	3453 B3	3460 D5	3478 E7	5301 C8	6431 C1	7427 B3	9312 C8	9410 E1	I131 B7	I136 A5	I141 D5	I147 E5	I152 E7	I161 A7	I177 B3	I182 B3	I187 C3		
2428 D6	2437 D4	3356 C8	3416 C6	3425 B4	3454 D6	3465 C7	3488 C3	6401 B7	6432 B1	7428 C3	9406 C8	I127 E1	I132 B6	I137 B1	I142 C5	I148 C8	I153 E7	I162 E7	I178 C3	I183 B4	I188 D1		

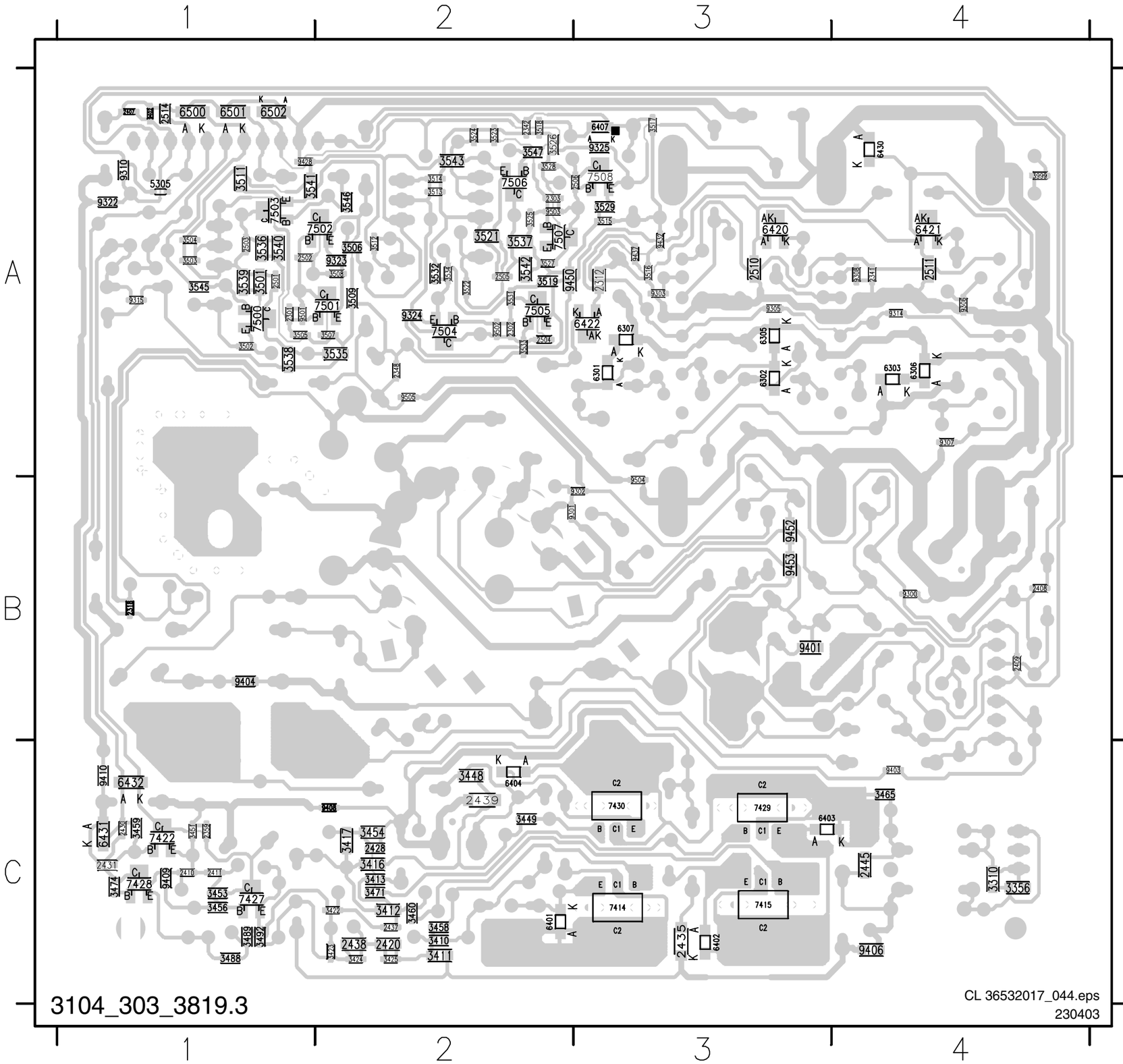


Layout CRT / Auto SCAVEM Panel (Top Side)



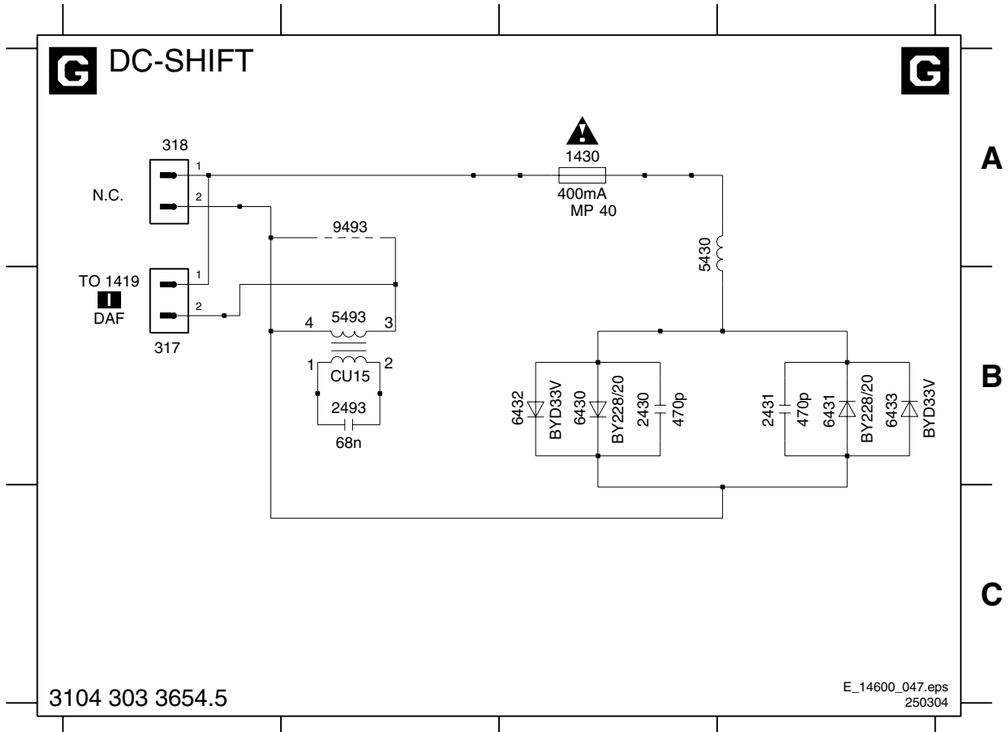
0031	A1	5301	C2
0033	A1	5303	B4
0035	A2	5304	B2
1237	A3	5308	A4
1298	C3	5309	C1
1424	B1	5310	C1
1434	B4	5400	B1
1435	B2	5500	A4
1483	C1	5501	A3
1940	A4	5502	A3
2313	B1	6400	B2
2317	A4	6405	B2
2319	B2	6406	A2
2320	A2	6426	A2
2324	A4	6427	A1
2338	A1	6428	A2
2339	A2	6503	B4
2340	A2	7330	A2
2347	A3	7340	A1
2357	A1	7350	A2
2358	C4	9304	A2
2403	B1	9309	A1
2404	B2	9311	C1
2405	B2	9312	C1
2436	C3	9320	C4
2512	B1	9321	B4
3301	C4	9407	A4
3303	C3	9416	B1
3304	B2	9417	C3
3305	A4	9418	C3
3334	A4	9423	A4
3338	A3	9424	A3
3339	B2	9430	A3
3340	B2	9431	A1
3341	B1	9435	A2
3345	B1	9436	A4
3346	B4	9451	B2
3347	B4	9460	C2
3348	B4	9461	C4
3349	B4	9462	C3
3350	A2	9463	C4
3351	A1	9464	C2
3352	A2	9506	B3
3401	B2	9507	B1
3402	B1		
3403	B2		
3404	B1		
3473	C3		
3478	C2		
3510	A2		
3520	A1		
3530	A2		
3544	A1		
5300	C1		

Layout CRT / Auto SCAVEM Panel (Bottom Side)



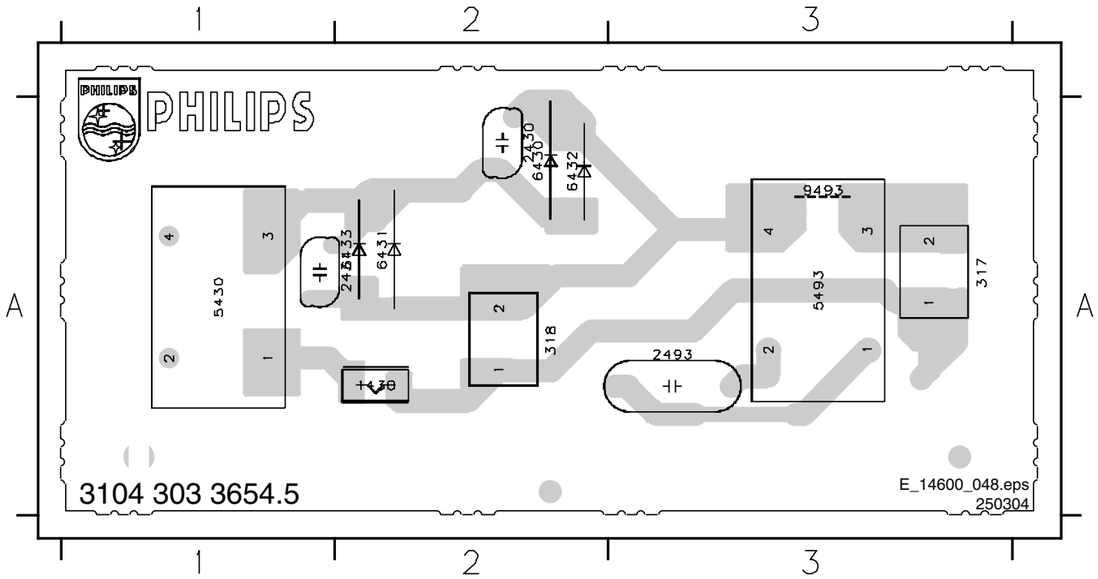
2301	A1	3501	A1	6430	A4
2302	A2	3502	A1	6431	C1
2303	A2	3503	A1	6432	C1
2312	A3	3504	A1	6500	A1
2318	B1	3505	A1	6501	A1
2341	A4	3506	A2	6502	A1
2342	A2	3507	A2	7414	C3
2348	A2	3508	A2	7415	C3
2359	C1	3509	A2	7422	C1
2407	A1	3511	A1	7427	C1
2408	B4	3512	A2	7428	C1
2409	B4	3513	A2	7429	C3
2410	C1	3514	A2	7430	C2
2411	C1	3515	A3	7500	A1
2420	C2	3516	A3	7501	A2
2428	C2	3517	A3	7502	A1
2430	C1	3518	A2	7503	A1
2431	C1	3519	A2	7504	A2
2435	C3	3521	A2	7505	A2
2437	C2	3522	A2	7506	A2
2438	C2	3523	A2	7507	A3
2439	C2	3524	A2	7508	A3
2445	C4	3525	A2	9300	B4
2501	A1	3526	A2	9301	B2
2502	A1	3527	A2	9302	B3
2503	A1	3528	A2	9303	A3
2504	A2	3529	A3	9305	A3
2505	A2	3531	A2	9306	A4
2506	A3	3532	A2	9307	A4
2510	A3	3533	A2	9308	A4
2511	A4	3534	A2	9310	A1
2514	A1	3535	A2	9314	A4
3310	C4	3536	A1	9315	A1
3356	C4	3537	A2	9322	A1
3410	C2	3538	A1	9323	A2
3411	C2	3539	A1	9324	A2
3412	C2	3540	A1	9325	A3
3413	C2	3541	A1	9401	B3
3416	C2	3542	A2	9402	A1
3417	C2	3543	A2	9403	C4
3422	C2	3545	A1	9404	B1
3423	C2	3546	A2	9406	C4
3424	C2	3547	A2	9408	C2
3425	C2	3999	A4	9409	C1
3448	C2	5305	A1	9410	C1
3449	C2	6301	A3	9428	A1
3451	C1	6302	A3	9432	A3
3453	C1	6303	A4	9437	A3
3454	C2	6305	A3	9450	A2
3456	C1	6306	A4	9452	B3
3458	C2	6307	A3	9453	B3
3459	C1	6401	C2	9501	A1
3460	C2	6402	C3	9502	A2
3465	C4	6403	C4	9503	A2
3471	C2	6404	C2	9504	B3
3474	C1	6407	A3	9505	A2
3488	C1	6420	A3		
3489	C1	6421	A4		
3492	C1	6422	A2		

DC Shift Panel



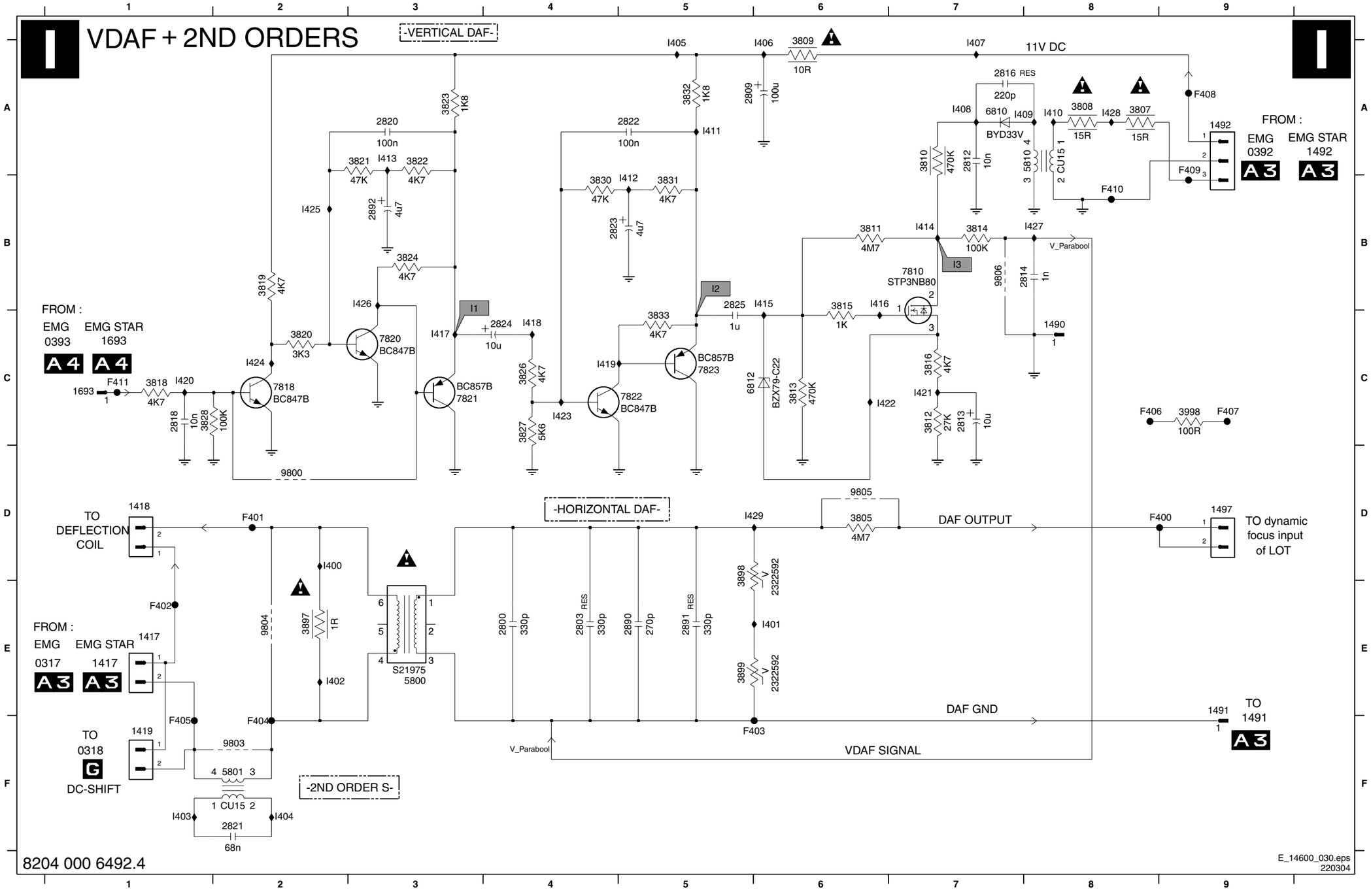
Layout DC Shift Panel

317	A3	2430	A2	5430	A1	6431	A2	9493	A3
318	A2	2431	A1	5493	A3	6432	A2		
1430	A2	2493	A3	6430	A2	6433	A2		



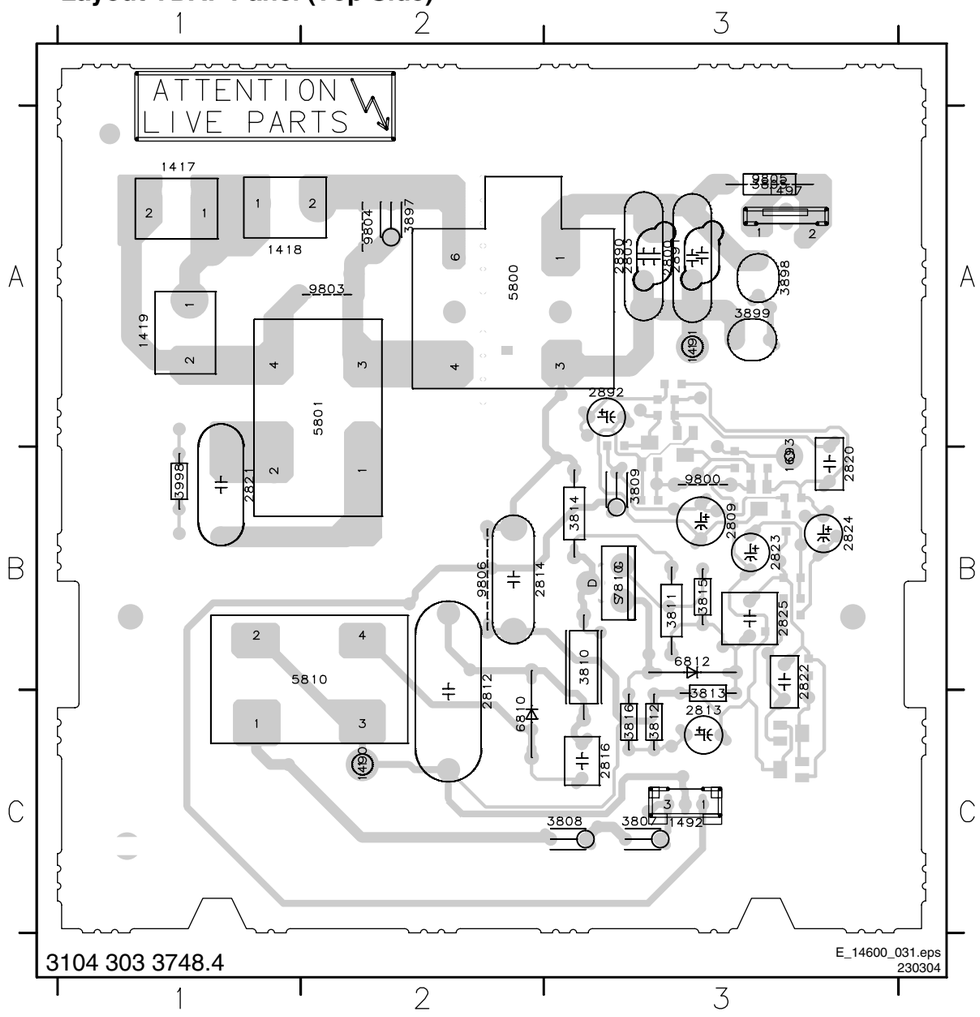
Personal Notes:

VDAF Panel + 2nd Orders



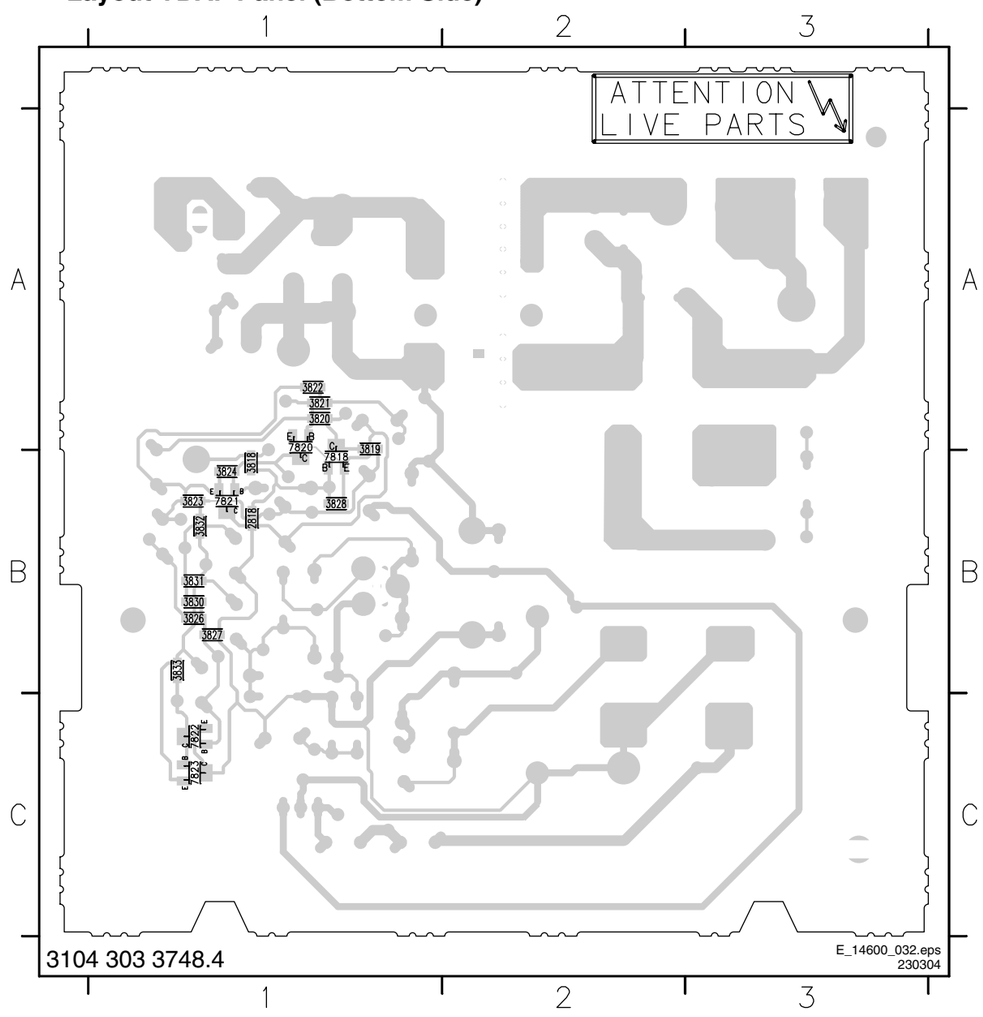
1417	E1	7818	C2
1418	D1	7820	C3
1419	F1	7821	C3
1490	C8	7822	C5
1491	E9	7823	C5
1492	A9	9800	D2
1497	D9	9803	F2
1693	C1	9804	E2
2800	E4	9805	D6
2803	E4	9806	B7
2809	A5	F400	D9
2812	A7	F401	D2
2813	C7	F402	E1
2814	B8	F403	F6
2816	A7	F404	F2
2818	C1	F405	F1
2820	A3	F406	C8
2821	F2	F407	C9
2822	A5	F408	A9
2823	B4	F409	A9
2824	C4	F410	B8
2825	B5	F411	C1
2890	E5	I400	D2
2891	E5	I401	E6
2892	B3	I402	E2
3805	D6	I403	F1
3807	A8	I404	F2
3808	A8	I405	A5
3809	A6	I406	A6
3810	A7	I407	A7
3811	B6	I408	A7
3812	C7	I409	A7
3813	C6	I410	A8
3814	B7	I411	A5
3815	B6	I412	B5
3816	C7	I413	A3
3818	C1	I414	B7
3819	B2	I415	B6
3820	C2	I416	B6
3821	A3	I417	C3
3822	A3	I418	C4
3823	A3	I419	C4
3824	B3	I420	C1
3826	C4	I421	C7
3827	C4	I422	C6
3828	C1	I423	C4
3830	B4	I424	C2
3831	B5	I425	B2
3832	A5	I426	B3
3833	C5	I427	B8
3897	E2	I428	A8
3898	D5	I429	D6
3899	E5		
3998	C9		
5800	E3		
5801	F2		
5810	A8		
6810	A7		
6812	C6		
7810	B7		

Layout VDAF Panel (Top Side)



1417 A1
1418 A1
1419 A1
1490 C2
1491 A3
1492 C3
1497 A3
1693 B3
2800 A3
2803 A3
2809 B3
2812 C2
2813 C3
2814 B3
2816 C3
2820 B3
2821 B1
2822 B3
2823 B3
2824 B3
2825 B3
2890 A3
2891 A3
2892 A3
3805 A3
3807 C3
3808 C3
3809 B3
3810 B3
3811 B3
3812 C3
3813 C3
3814 B3
3815 B3
3816 C3
3897 A2
3898 A3
3899 A3
3998 B1
5800 A2
5801 A1
5810 B2
6810 C2
6812 B3
7810 B3
9800 B3
9803 A2
9804 A2
9805 A3
9806 B2

Layout VDAF Panel (Bottom Side)



2818 B1
3818 B1
3819 A1
3820 A1
3821 A1
3822 A1
3823 B1
3824 B1
3826 B1
3827 B1
3828 B1
3830 B1
3831 B1
3832 B1
3833 B1
7818 B1
7820 A1
7821 B1
7822 C1
7823 C1

Jack-High Defenition Interface Panel: Control

N1 CONTROL JACK-HIGH DEFINITION INTERFACE

N1

RGB-OUTPUT SELECTION

SWITCH-IC

MATRIX-SELECTION

SWITCH-IC

I/O-expander

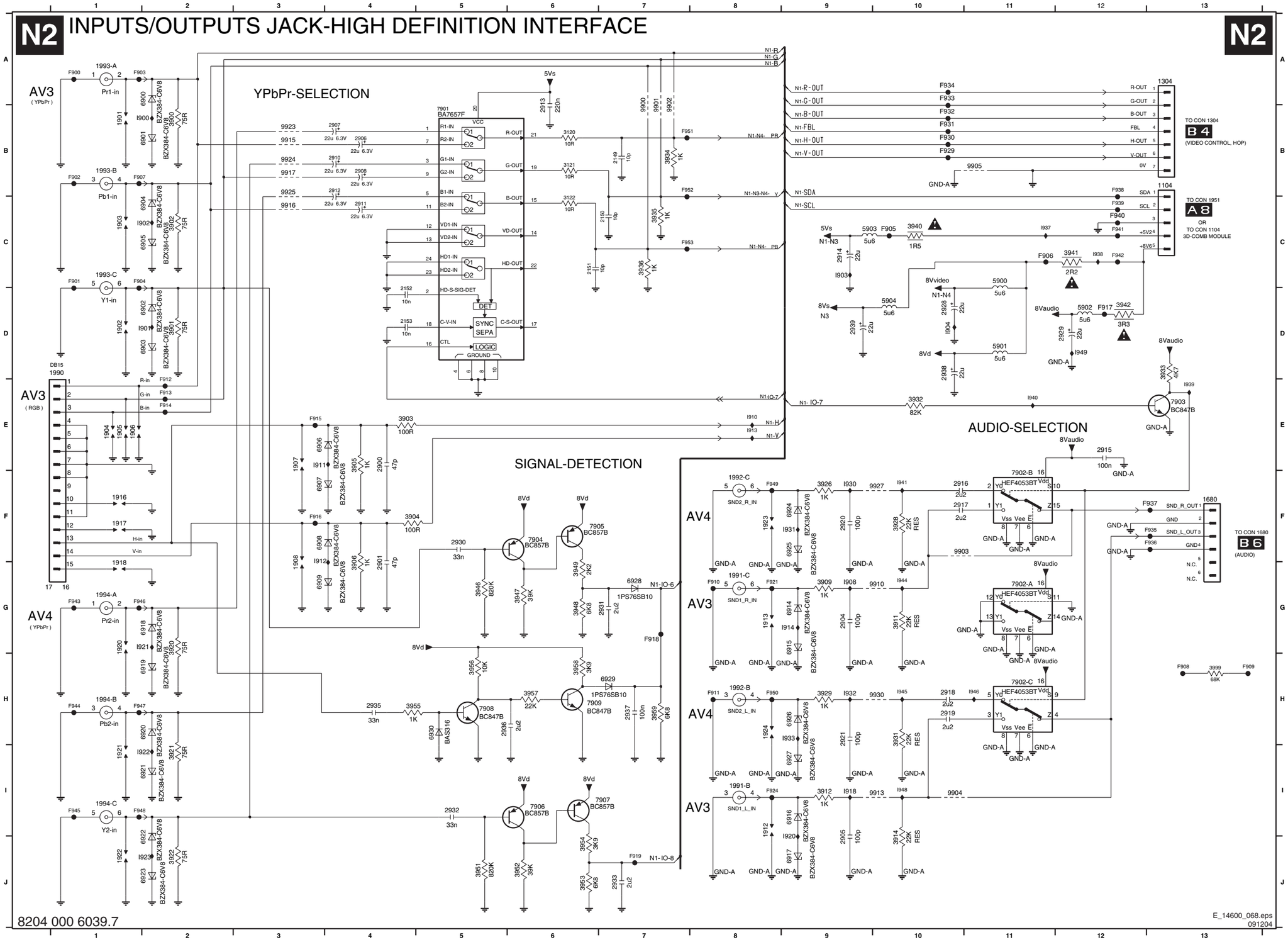
8204 000 6039.7

E_14600_067.eps
091204

2101 B2
2102 C7
2103 B2
2104 D7
2105 C2
2107 B2
2109 C2
2111 C2
2113 A4
2115 F2
2117 F2
2119 G2
2121 G2
2122 D3
2123 D3
2125 G2
2127 G2
2130 F4
2131 E9
2132 G10
2133 E8
2134 F10
2135 G10
2140 F10
2141 B5
2142 C5
2143 D5
2144 G5
2145 G5
2146 H5
2147 H3
2148 H3
3100 H2
3101 B5
3102 H2
3103 C5
3104 D5
3105 D5
3106 D2
3107 D2
3108 C8
3109 D8
3110 C8
3111 C9
3112 D9
3113 B5
3114 B5
3115 C5
3116 F5
3117 G5
3118 G5
3119 G8
3124 F9
3125 F10
3126 B9
3127 C10
3129 G5
3130 F10
3131 G5
3132 G10
3133 H5
3139 G7
3141 G7
3142 G7
3143 G7
3144 G8
3150 B10
3151 E10
3152 I5
7101 B3
7102-A A9
7102-B E9
7105 E10
7106 F9
7107 F3
7108 B10
7109 C9
7110 D10
9100 A2
9101 B2
9102 B2
9103 E6
9106 H7
9107 G6
9108 G7
9109 G6
9110 G7
9111 H7
F100 F5
F101 G5
F102 G5

I100 H8
I101 H8
I102 H8
I103 H8
I104 H8
I106 I8
I111 E9
I112 E10
I119 B10
I120 E11
I122 D8
I123 C8
I124 C8
I125 C9
I127 D9
I128 E3

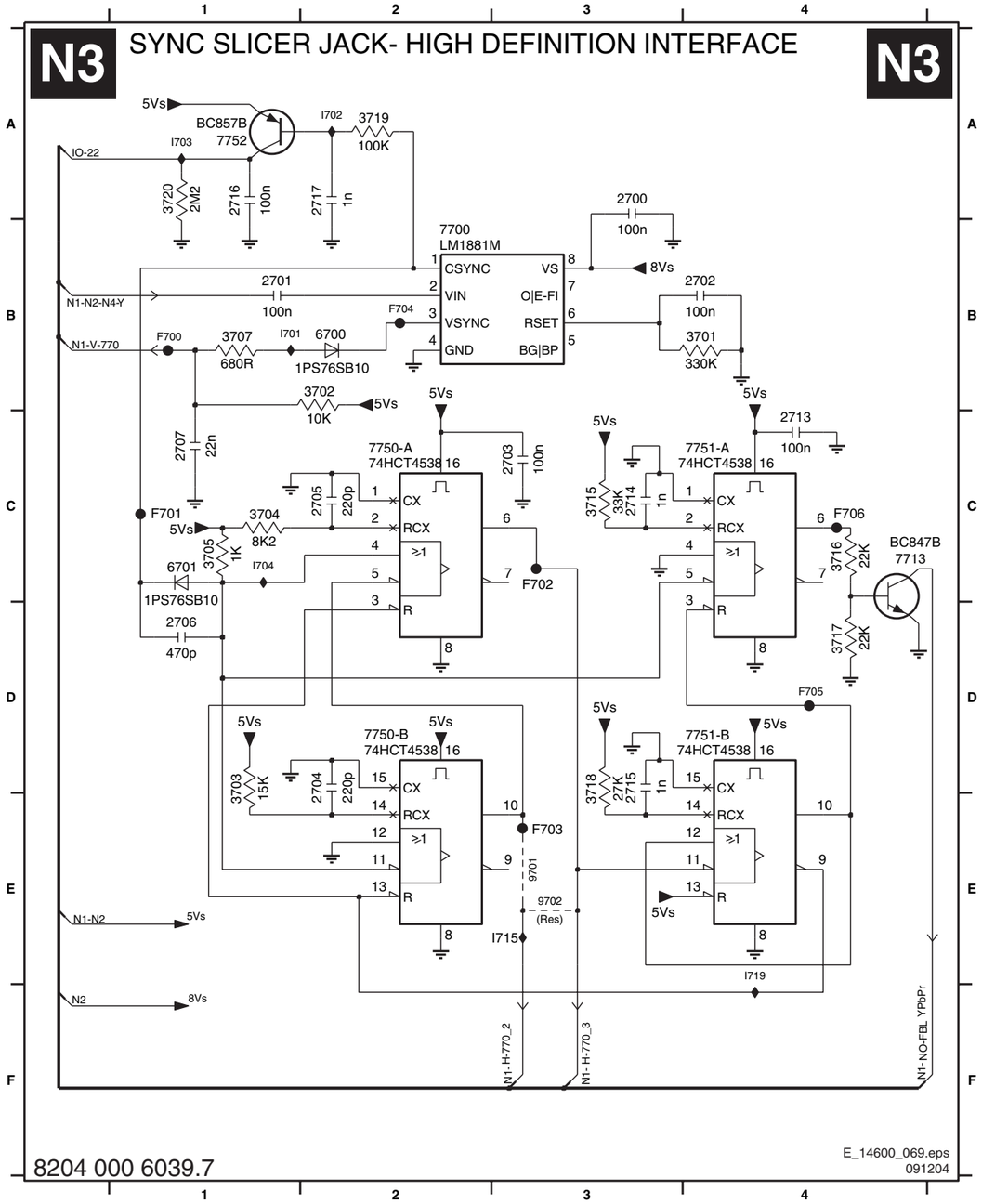
Jack-High Defenition Interface Panel: Inputs / Outputs



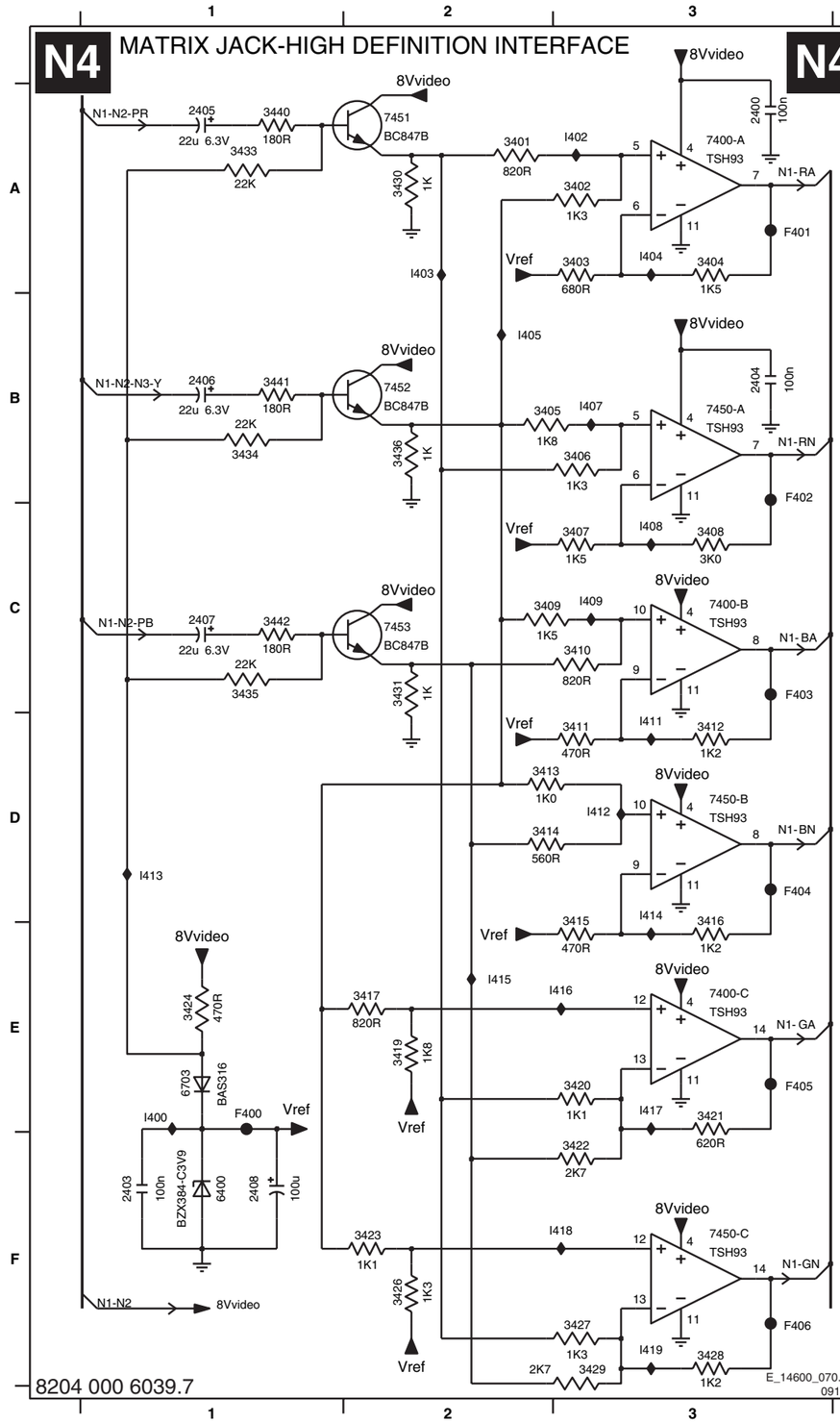
1104 B13	3941 C12	F919 J7
1304 A13	3942 D12	F921 G8
1680 F13	3946 G5	F924 I8
1901 B1	3947 G6	F929 B10
1902 D1	3948 G6	F930 B10
1903 C1	3949 G6	F931 B10
1904 E1	3951 J5	F932 B10
1905 E1	3952 J6	F933 A10
1906 E1	3953 J6	F934 A10
1907 E3	3954 J6	F935 F13
1908 G3	3955 H4	F936 F13
1912 I8	3956 H5	F937 F13
1913 G8	3957 H6	F938 B12
1916 F1	3958 H6	F939 C12
1917 F1	3959 H7	F940 C12
1918 G1	3999 H13	F941 C12
1920 G1	5900 C11	F942 C12
1921 I1	5901 D11	F943 G1
1922 J1	5902 D12	F944 H1
1923 F8	5903 C9	F945 I1
1924 H8	5904 D10	F946 G1
1990 D1	6900 A2	F947 H1
1991-B I8	6901 B2	F948 I1
1991-C G8	6902 D2	F949 F8
1992-B H8	6903 D2	F950 H8
1992-C F8	6904 C2	F951 B7
1993-A A1	6905 C2	F952 B7
1993-B B1	6906 E3	F953 C7
1993-C C1	6907 F3	I900 B2
1994-A G1	6908 F3	I901 D2
1994-B H1	6909 G3	I902 C2
1994-C I1	6914 G9	I903 C9
2149 B7	6915 G9	I904 D10
2150 C7	6916 I9	I908 G9
2151 C6	6917 J9	I910 E8
2152 D4	6918 G2	I911 E3
2153 D4	6919 H2	I912 F3
2900 E4	6920 H2	I913 E8
2901 G4	6921 I2	I914 G9
2904 G9	6922 J2	I918 I9
2905 J9	6923 J2	I920 I9
2906 B4	6924 F9	I921 G2
2907 B4	6925 F9	I922 I2
2908 B4	6926 H9	I923 J2
2910 B4	6927 I9	I930 F9
2911 C4	6928 G7	I931 F9
2912 B4	6929 H7	I932 H9
2913 B6	6930 H5	I933 H9
2914 C9	7901 B5	I937 C11
2915 E12	7902-A G11	I938 C12
2916 F10	7902-B F11	I939 E13
2917 F10	7902-C H11	I940 E11
2918 H10	7903 E13	I941 F10
2919 H10	7904 F6	I944 G10
2920 F9	7905 F6	I945 H10
2921 H9	7906 I6	I946 H11
2928 D10	7907 I6	I948 I10
2929 D12	7908 H5	I949 D12
2930 F5	7909 H6	
2931 G7	9900 B7	
2932 I5	9901 B7	
2933 J7	9902 B7	
2935 H4	9903 F10	
2936 H5	9904 I10	
2937 H7	9905 B11	
2938 D10	9910 G10	
2939 D9	9913 I10	
3120 B6	9915 B3	
3121 B6	9916 C3	
3122 C6	9917 B3	
3900 B2	9923 B3	
3901 D2	9924 B3	
3902 C2	9925 B3	
3903 E4	9927 F10	
3904 F4	9930 H10	
3905 E4	F900 A1	
3906 G4	F901 C1	
3909 G9	F902 B1	
3911 G10	F903 A1	
3912 I9	F904 C1	
3914 J10	F905 C10	
3920 G2	F906 C11	
3921 I2	F907 B1	
3922 J2	F908 H13	
3926 F9	F909 H13	
3928 F10	F910 G8	
3929 H9	F911 H8	
3931 H10	F912 E2	
3932 E10	F913 E2	
3933 D13	F914 E2	
3934 B7	F915 E3	
3935 C7	F916 F3	
3936 C7	F917 D12	
3940 C10	F918 G7	

Jack-High Defenition Interface Panel: Sync Slicer

2700 A3 2705 C2 2715 D3 3703 D1 3716 C4 6700 B2 7750-B D2 9702 E3 F704 B2 I703 A1
2701 B1 2706 D1 2716 A1 3704 C1 3717 D4 6701 C1 7751-A C4 F700 B1 F705 D4 I704 C1
2702 B4 2707 C1 2717 A2 3705 C1 3718 D3 7700 B2 7751-B D4 F701 C1 F706 C4 I715 E3
2703 C3 2713 C4 3701 B4 3707 B1 3719 A2 7713 C4 7752 A1 F702 C3 I701 B1 I719 E4
2704 D2 2714 C3 3702 B2 3715 C3 3720 A1 7750-A C2 9701 E3 F703 E3 I702 A2

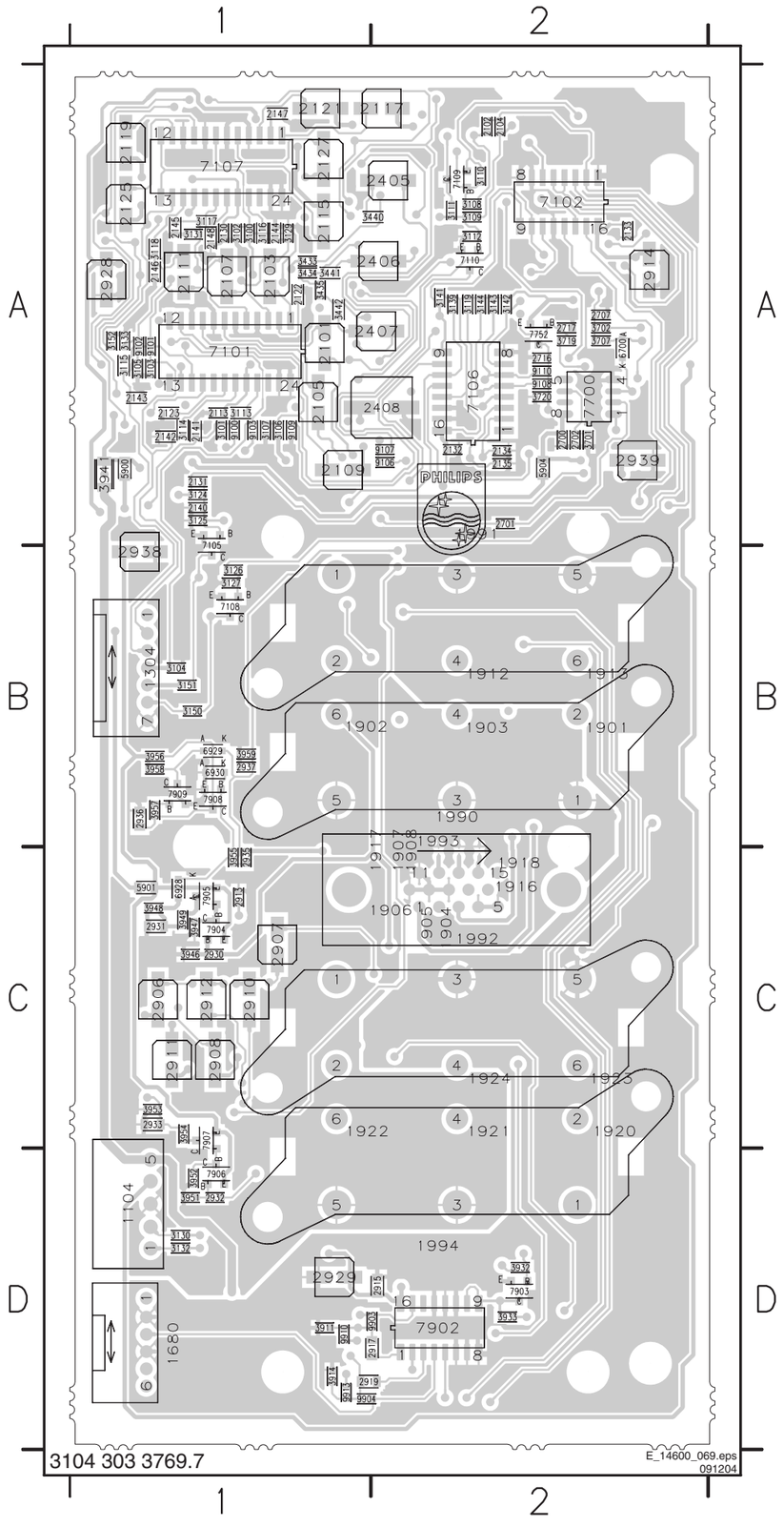


Jack-High Defenition Interface Panel: Matrix



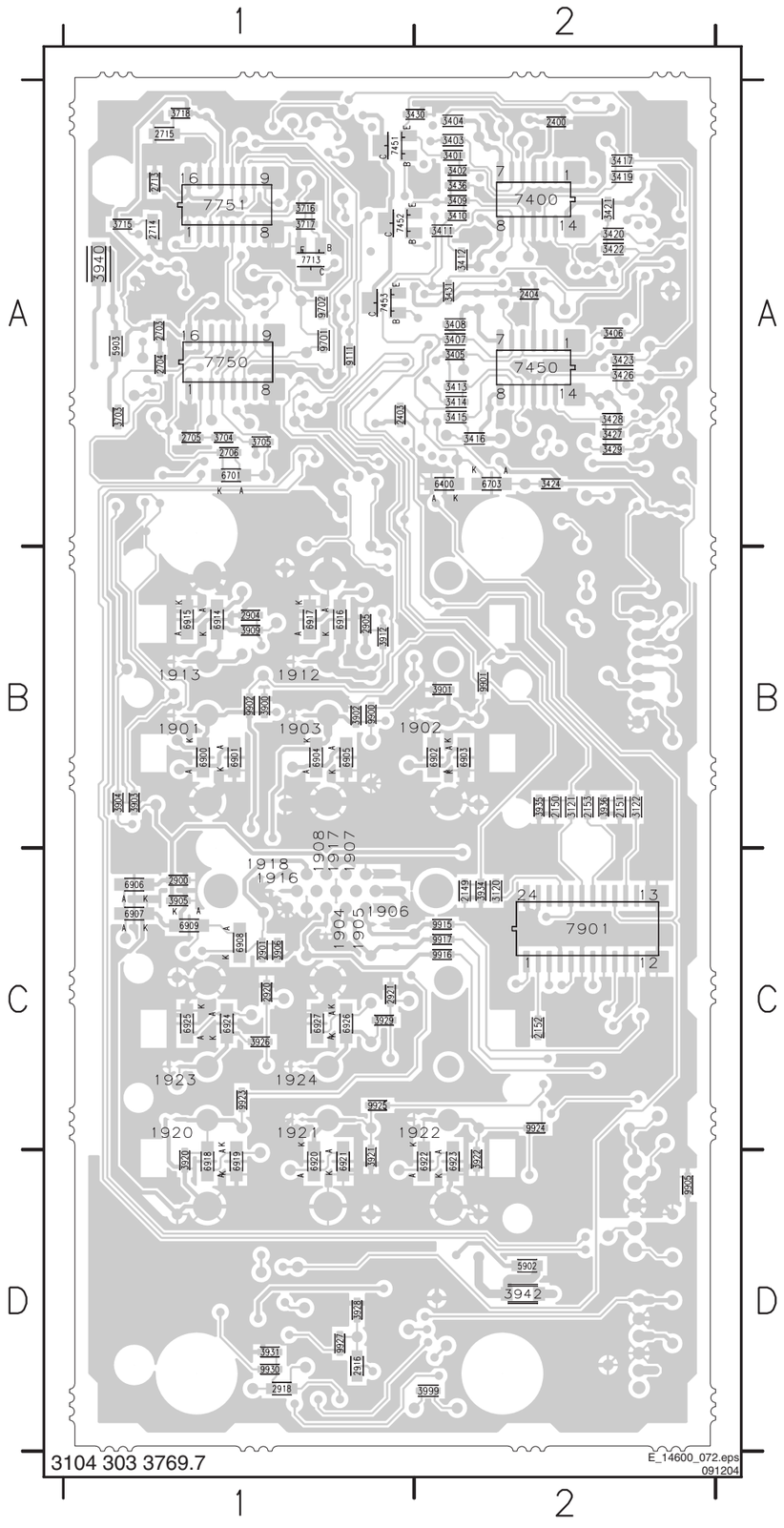
2400 A3 I402 A3
2403 F1 I403 A2
2404 B3 I404 A3
2405 A1 I405 B2
2406 B1 I407 B3
2407 C1 I408 C3
2408 F1 I409 C3
3401 A2 I411 D3
3402 A3 I412 D3
3403 A3 I413 D1
3404 A3 I414 D3
3405 B2 I415 E2
3406 B3 I416 E3
3407 C3 I417 E3
3408 C3 I418 F3
3409 C2 I419 F3
3410 C3
3411 D3
3412 D3
3413 D2
3414 D2
3415 E3
3416 E3
3417 E2
3419 E2
3420 E3
3421 E3
3422 F3
3423 F2
3424 E1
3426 F2
3427 F3
3428 F3
3429 F3
3430 A2
3431 C2
3433 A1
3434 B1
3435 C1
3436 B2
3440 A1
3441 B1
3442 C1
6400 F1
6703 E1
7400-A A3
7400-B C3
7400-C E3
7450-A B3
7450-B D3
7450-C F3
7451 A2
7452 B2
7453 C2
F400 E1
F401 A3
F402 B3
F403 C3
F404 D3
F405 E3
F406 F3
I400 E1

Layout Jack-High Defenition Interface Panel (Top Side)



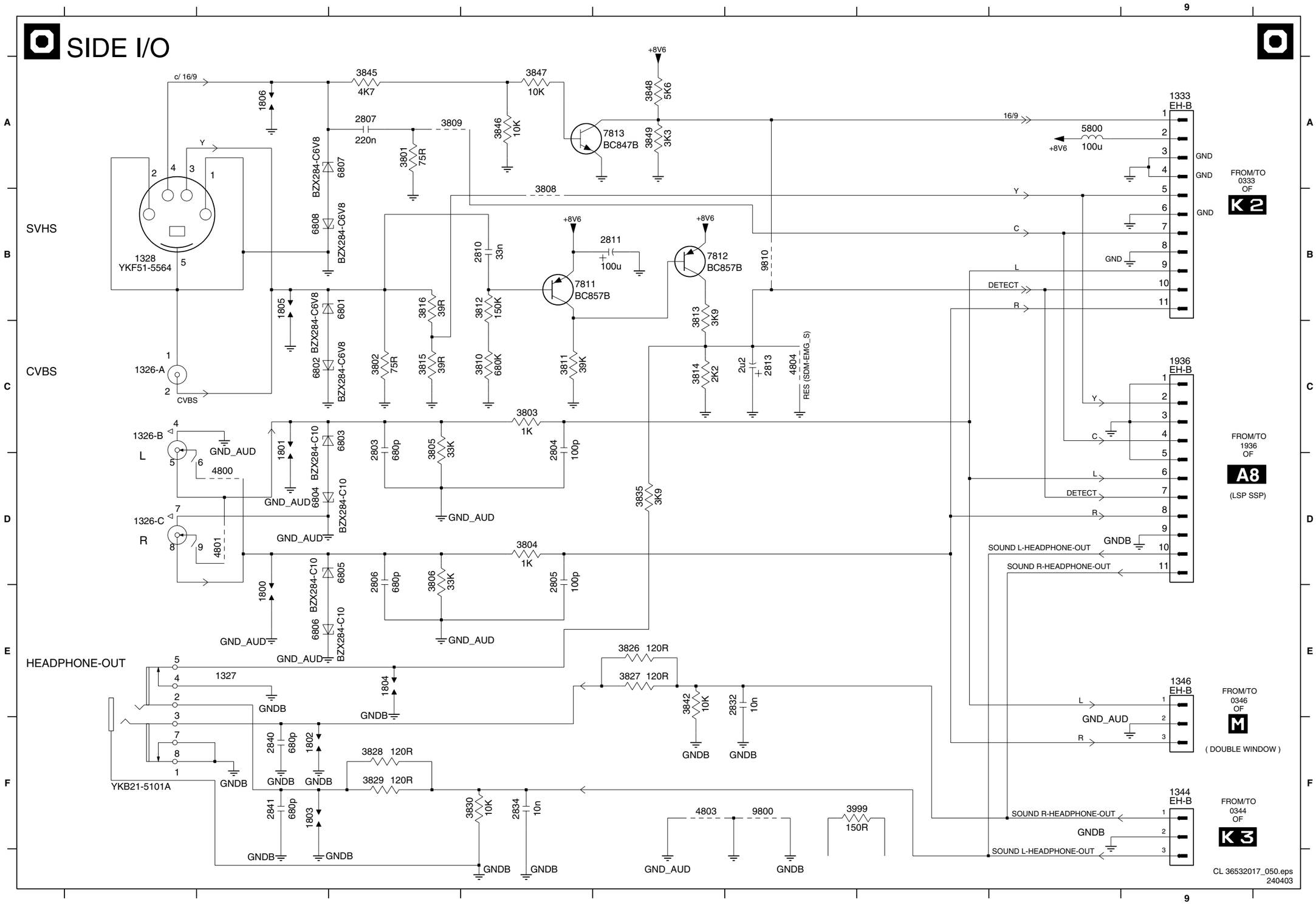
1104 D1
1304 B1
1680 D1
1990 C2
1991 B2
1992 C2
1993 B2
1994 D2
2101 A1
2102 A2
2103 A1
2104 A2
2105 A1
2107 A1
2109 A1
2111 A1
2113 A1
2115 A1
2117 A2
2119 A1
2121 A1
2122 A1
2123 A1
2125 A1
2127 A1
2130 A1
2131 A1
2132 A2
2133 A2
2134 A2
2135 A2
2140 A1
2141 A1
2142 A1
2143 A1
2144 A1
2145 A1
2146 A1
2147 A1
2148 A1
2405 A2
2406 A2
2407 A2
2408 A2
2700 A2
2701 A2
2702 A2
2707 A2
2716 A2
2717 A2
2906 C1
2907 C1
2908 C1
2910 C1
2911 C1
2912 C1
2913 C1
2914 A2
2915 D2
2917 D2
2919 D1
2928 A1
2929 D1
2930 C1
2931 C1
2932 D1
2933 C1
2935 C1
2936 B1
2937 B1
2938 A1
2939 A2
3100 A1
3101 A1
3102 A1
3103 A1
3104 B1
3105 A1
3106 A1
3107 A1
3108 A2
3109 A2
3110 A2
3111 A2
3112 A2
3113 A1
3114 A1
3115 A1
3116 A1
3117 A1
3118 A1
3119 A2
3124 A1
3125 A1
3126 B1
3127 B1
3129 A1
3130 D1
3131 A1
3132 D1
3133 A1
3139 A2
3141 A2
3142 A2
3143 A2
3144 A2
3150 B1
3151 B1
3152 A1
3433 A1
3434 A1
3435 A1
3440 A2
3441 A1
3442 A1
3701 A2
3702 A2
3707 A2
3719 A2
3720 A2
3911 D1
3914 D1
3932 D2
3933 D2
3941 A1
3946 C1
3947 C1
3948 C1
3949 C1
3951 D1
3952 D1
3953 C1
3954 C1
3955 C1
3956 B1
3957 B1
3958 B1
3959 B1
5900 A1
5901 C1
5904 A2
6700 A2
6928 C1
6929 B1
6930 B1
7101 A1
7102 A2
7105 B1
7106 A2
7107 A1
7108 B1
7109 A2
7110 A2
7700 A2
7752 A2
7902 D2
7903 D2
7904 C1
7905 C1
7906 D1
7907 C1
7908 B1
7909 B1
9100 A1
9101 A1
9102 A1
9103 A1
9106 A2
9107 A2
9108 A2
9109 A1
9110 A2
9903 D2
9904 D1
9910 D1
9913 D1

Layout Jack-High Defenition Interface Panel (Bottom Side)



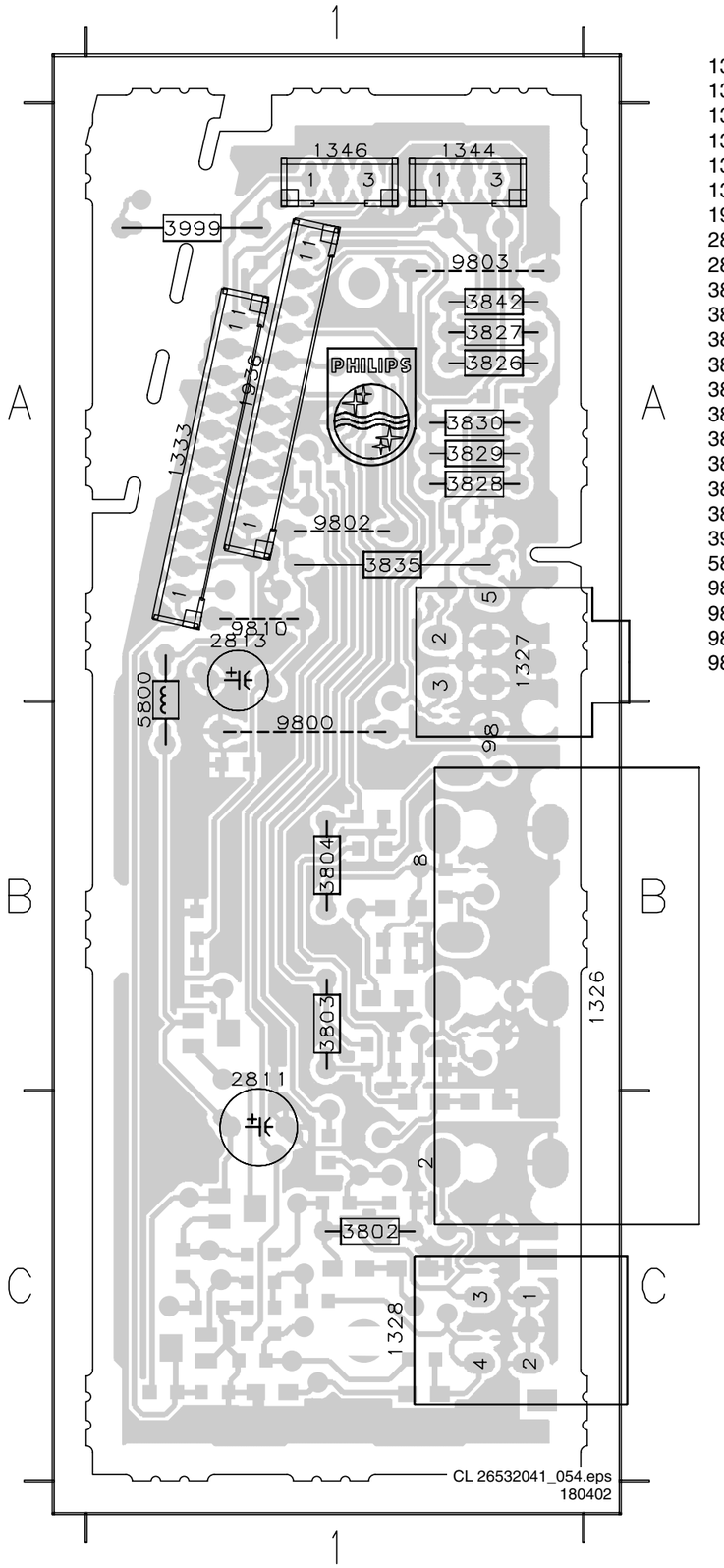
2149 C2
2150 B2
2151 B2
2152 C2
2153 B2
2400 A2
2403 A1
2404 A2
2703 A1
2704 A1
2705 A1
2706 A1
2713 A1
2714 A1
2715 A1
2900 C1
2901 C1
2904 B1
2905 B1
2916 D1
2918 D1
2920 C1
2921 C1
3120 C2
3121 B2
3122 B2
3401 A2
3402 A2
3403 A2
3404 A2
3405 A2
3406 A2
3407 A2
3408 A2
3409 A2
3410 A2
3411 A2
3412 A2
3413 A2
3414 A2
3415 A2
3416 A2
3417 A2
3419 A2
3420 A2
3421 A2
3422 A2
3423 A2
3424 A2
3426 A2
3427 A2
3428 A2
3429 A2
3430 A2
3431 A2
3436 A2
3703 A1
3704 A1
3705 A1
3715 A1
3716 A1
3717 A1
3718 A1
3900 B1
3901 B2
3902 B1
3903 B1
3904 B1
3905 C1
3906 C1
3909 B1
3912 B1
3920 D1
3921 D1
3922 D2
3926 C1
3928 D1
3929 C1
3931 D1
3934 C2
3935 B2
3936 B2
3940 A1
3942 D2
3999 D2
5902 D2
5903 A1
6400 A2
6701 A1
6703 A2
6900 B1
6901 B1
6902 B2
6903 B2
6904 B1
6905 B1
6906 C1
6907 C1
6908 C1
6909 C1
6914 B1
6915 B1
6916 B1
6917 B1
6918 C1
6919 D1

Side I/O Panel



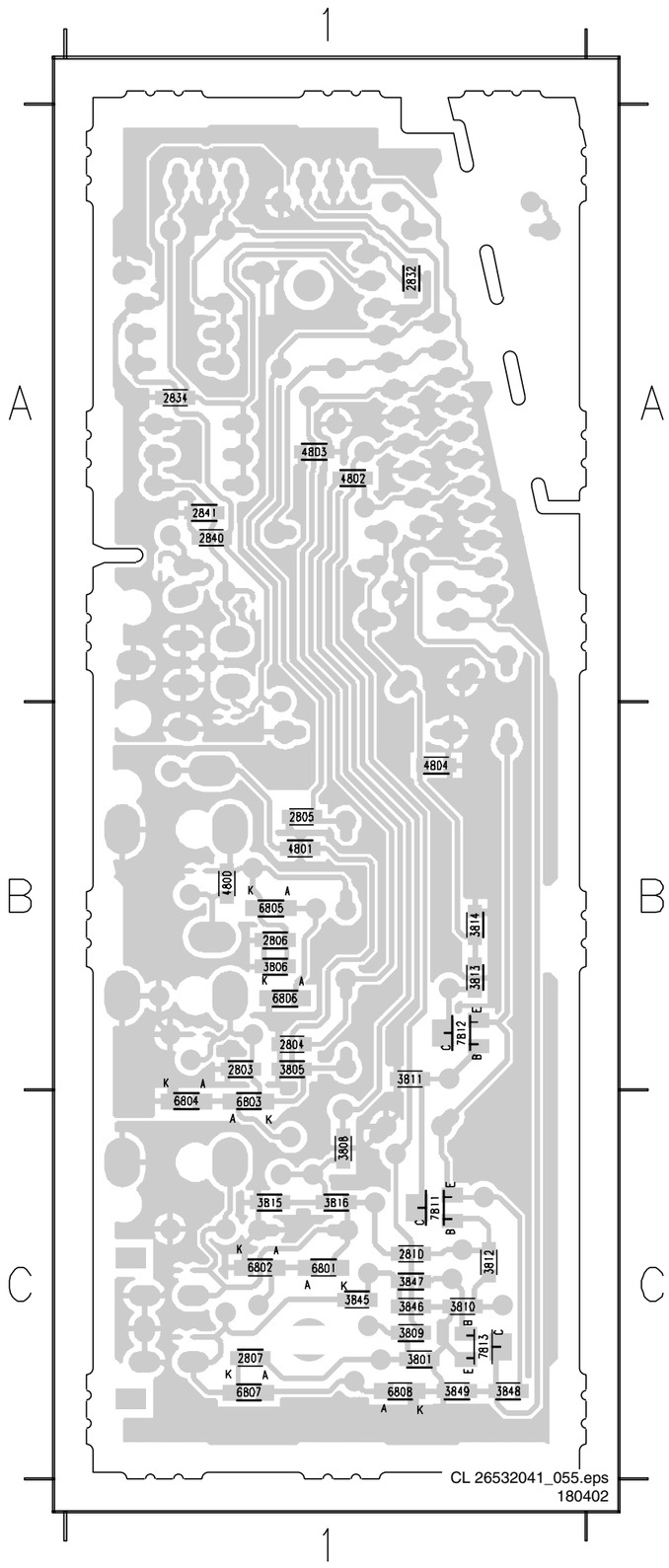
1326-A C1
1326-B C1
1326-C D1
1327 E2
1328 B1
1333 A9
1344 F9
1346 E9
1800 E2
1801 C2
1802 F2
1803 F2
1804 E3
1805 B2
1806 A2
1936 C9
2803 C3
2804 C4
2805 D4
2806 D3
2807 A3
2810 B4
2811 B5
2813 C6
2832 E6
2834 F4
2840 F2
2841 F2
3801 A3
3802 C3
3803 C4
3804 D4
3805 C3
3806 D3
3808 B4
3809 A3
3810 C4
3811 C4
3812 B4
3813 B5
3814 C5
3815 C3
3816 B3
3826 E5
3827 E5
3828 F3
3829 F3
3830 F4
3835 D5
3842 E5
3845 A3
3846 A4
3847 A4
3848 A5
3849 A5
3999 F7
4800 D2
4801 D2
4803 F5
4804 C6
5800 A8
6801 B3
6802 C2
6803 C3
6804 D2
6805 D3
6806 E2
6807 A3
6808 B2
7811 B4
7812 B5
7813 A5
9800 F6
9810 B6

Layout Side I/O Panel (Top Side)



1326	B1
1327	A1
1328	C1
1333	A1
1344	A1
1346	A1
1936	A1
2811	B1
2813	A1
3802	C1
3803	B1
3804	B1
3826	A1
3827	A1
3828	A1
3829	A1
3830	A1
3835	A1
3842	A1
3999	A1
5800	A1
9800	B1
9802	A1
9803	A1
9810	A1

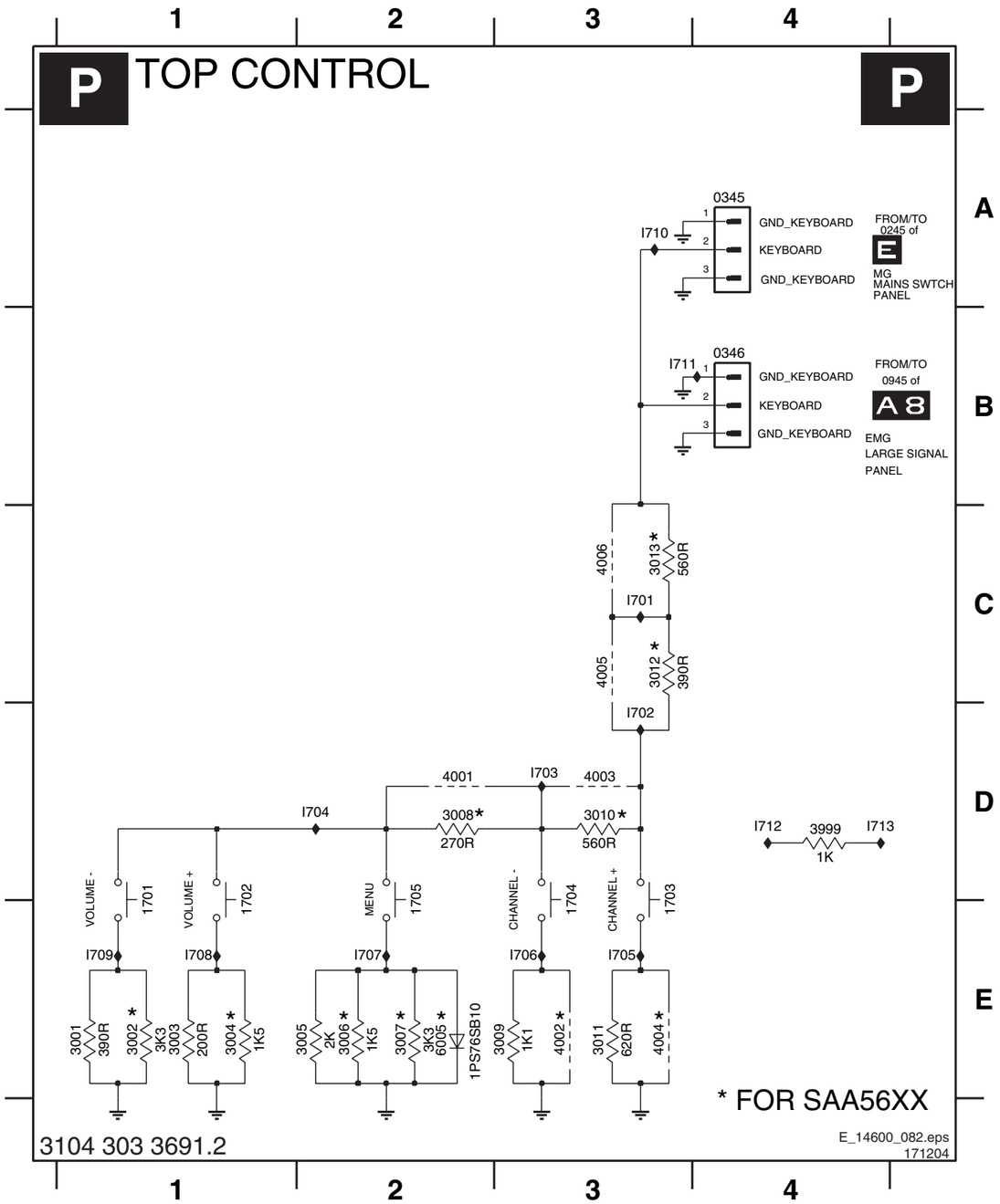
Layout Side I/O Panel (Bottom Side)



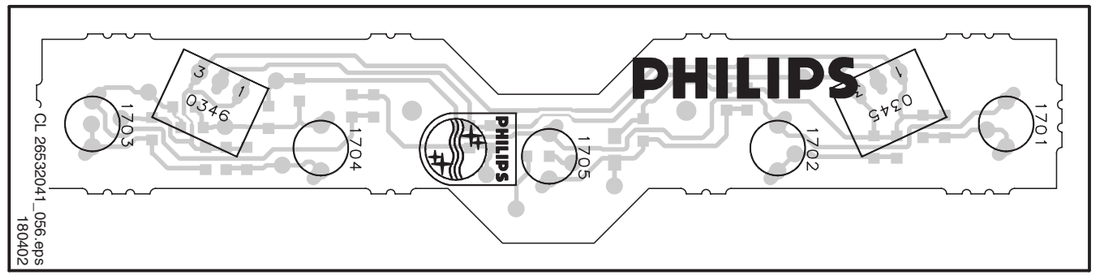
2803	B1
2804	B1
2805	B1
2806	B1
2807	C1
2810	C1
2832	A1
2834	A1
2840	A1
2841	A1
3801	C1
3805	B1
3806	B1
3808	C1
3809	C1
3810	C1
3811	B1
3812	C1
3813	B1
3814	B1
3815	C1
3816	C1
3845	C1
3846	C1
3847	C1
3848	C1
3849	C1
4800	B1
4801	B1
4802	A1
4803	A1
4804	B1
6801	C1
6802	C1
6803	B1
6804	C1
6805	B1
6806	B1
6807	C1
6808	C1
7811	C1
7812	B1
7813	C1

Top Control Panel

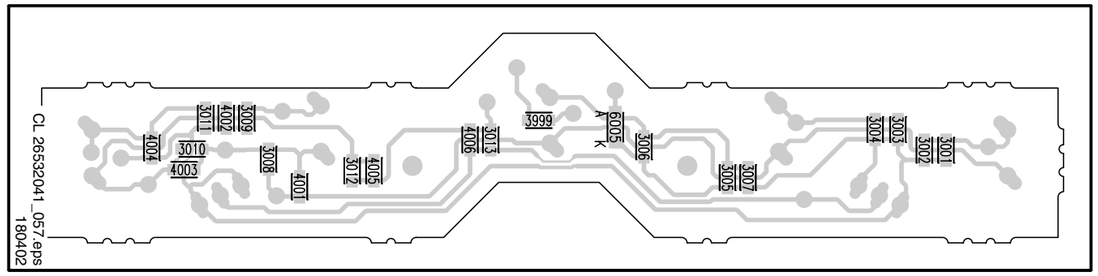
0345 A4	1703 D3	3002 E1	3006 E2	3010 D3	3999 D4	4004 E3	I701 C3	I705 E3	I709 E1	I713 D4
0346 B4	1704 D3	3003 E1	3007 E2	3011 E3	4001 D2	4005 C3	I702 D3	I706 E3	I710 A3	
1701 D1	1705 D2	3004 E1	3008 D2	3012 C3	4002 E3	4006 C3	I703 D3	I707 E2	I711 B3	
1702 D1	3001 E1	3005 E2	3009 E3	3013 C3	4003 D3	6005 E2	I704 D2	I708 E1	I712 D4	



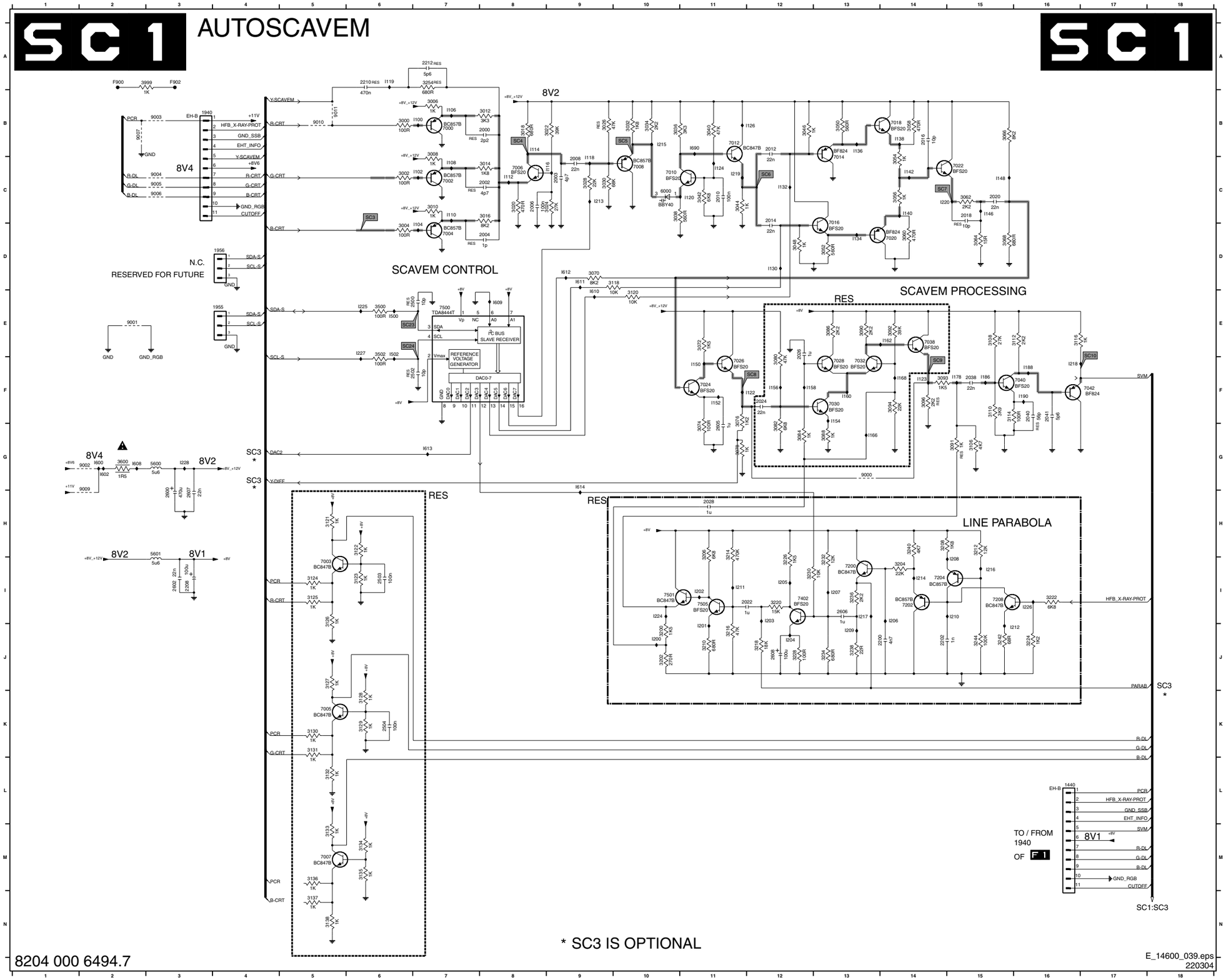
Top Control Panel (Top Side)



Top Control Panel Bottom Side)



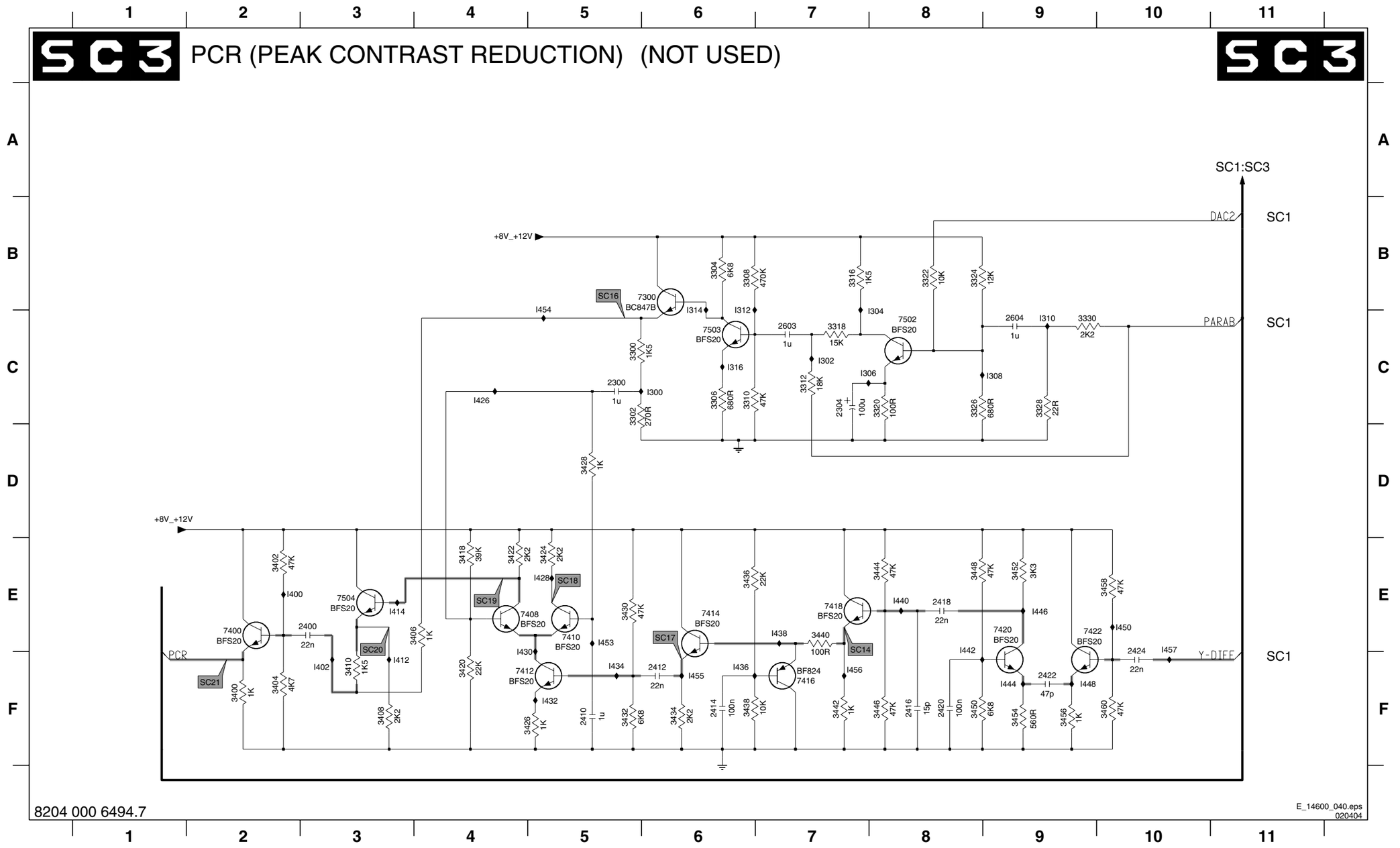
Auto SCAVEM Panel



1440 L16 6000 C10
1940 B3 7000 B7
1955 E4 7002 C7
1956 D4 7003 I5
2000 B8 7004 D7
2002 C8 7005 K5
2003 C9 7006 C8
2004 D8 7007 M5
2006 C8 7008 C10
2008 C9 7010 C10
2010 C11 7012 B11
2012 B12 7014 B13
2014 C12 7016 D13
2016 B14 7018 B14
2018 C15 7020 D14
2020 C15 7022 C15
2022 I12 7024 F11
2024 F12 7026 F11
2026 E12 7028 F13
2028 H11 7030 F13
2038 F15 7032 F13
2040 F16 7038 E14
2041 F16 7040 F16
2200 J14 7042 F17
2202 J14 7200 I13
2208 I3 7202 I14
2210 A6 7204 I14
2212 A7 7208 I15
2500 E7 7402 I12
2502 F7 7500 E7
2503 I5 7501 I10
2504 K5 7505 I11
2600 H3 9000 G13
2602 I3 9001 E2
2605 G11 9002 G2
2606 I13 9003 B3
2607 H3 9004 C3
2608 J12 9005 C3
3000 B6 9006 C3
3002 C6 9007 B2
3004 D6 9009 H2
3006 B7 9010 B5
3008 B7 9011 B5
3010 C7 F900 A2
3012 B8 F902 A3
3014 C8 I100 B7
3016 C8 I102 C7
3018 B8 I104 D7
3020 C8 I106 B7
3022 B9 I108 C7
3024 C9 I110 C7
3026 B9 I112 C8
3028 C9 I114 B8
3030 C9 I116 C9
3032 B10 I118 C9
3034 B10 I119 A6
3036 B10 I120 C11
3038 C10 I122 F12
3040 B11 I123 F14
3042 C11 I124 C11
3044 C11 I126 B12
3046 B12 I130 D12
3048 D12 I132 C12
3050 B13 I134 D13
3052 D13 I136 B13
3054 C14 I138 B14
3056 C14 I140 C14
3058 B14 I142 C14
3060 D14 I146 C15
3062 C15 I148 C15
3064 D15 I150 F11
3066 B15 I152 F11
3068 D15 I154 F13
3070 D9 I156 F12
3072 E11 I158 F12
3074 G11 I160 F13
3076 F11 I162 E14
3078 G11 I166 G13
3080 F12 I168 F14
3082 G12 I178 F15
3084 G12 I186 F15
3086 E13 I188 F16
3088 G13 I190 F16
3090 E13 I200 J10
3091 G15 I201 J11
3092 E14 I202 I11
3093 F14 I203 I12
3094 F14 I204 J12
3096 F14 I205 I12
3106 G15 I206 I14
3108 E15 I207 I13
3110 F15 I208 I15
3112 E16 I209 J13
3114 F15 I210 I15
3116 E16 I211 I11
3118 D10 I212 J16
3120 E10 I213 C9
3121 H5 I214 I14
3122 H6 I215 B10
3123 I5 I216 I15
3124 I5 I217 I13
3125 I5 I218 F16
3126 I5 I219 C11
3127 J5 I220 C14
3128 K6 I224 I10
3129 K6 I225 E6
3130 K5 I226 I16
3131 K5 I227 E6
3132 L5 I228 G3
3133 M5 I500 E6
3134 M6 I502 E6
3135 M6 I600 G2
3136 M5 I602 G2
3137 N5 I608 G2
3138 N5 I609 E8
3200 J10 I610 E9
3202 J10 I611 D9
3204 I14 I612 D9
3206 H11 I613 G7
3208 H14 I614 G9
3210 J11 I690 B11
3212 H15
3214 H11
3216 J11
3218 J12
3220 I12
3222 I16
3224 J16
3226 I12
3228 J12
3230 I12
3232 I13
3234 J13
3236 I13
3238 J13
3240 H14
3242 J15
3244 J15
3254 A7
3500 E6
3502 E6
3600 G2
3999 A3
5600 G3
5601 H3

Auto SCAVEM Panel Peak Contrast Reduction

SC3 PCR (PEAK CONTRAST REDUCTION) (NOT USED) SC3



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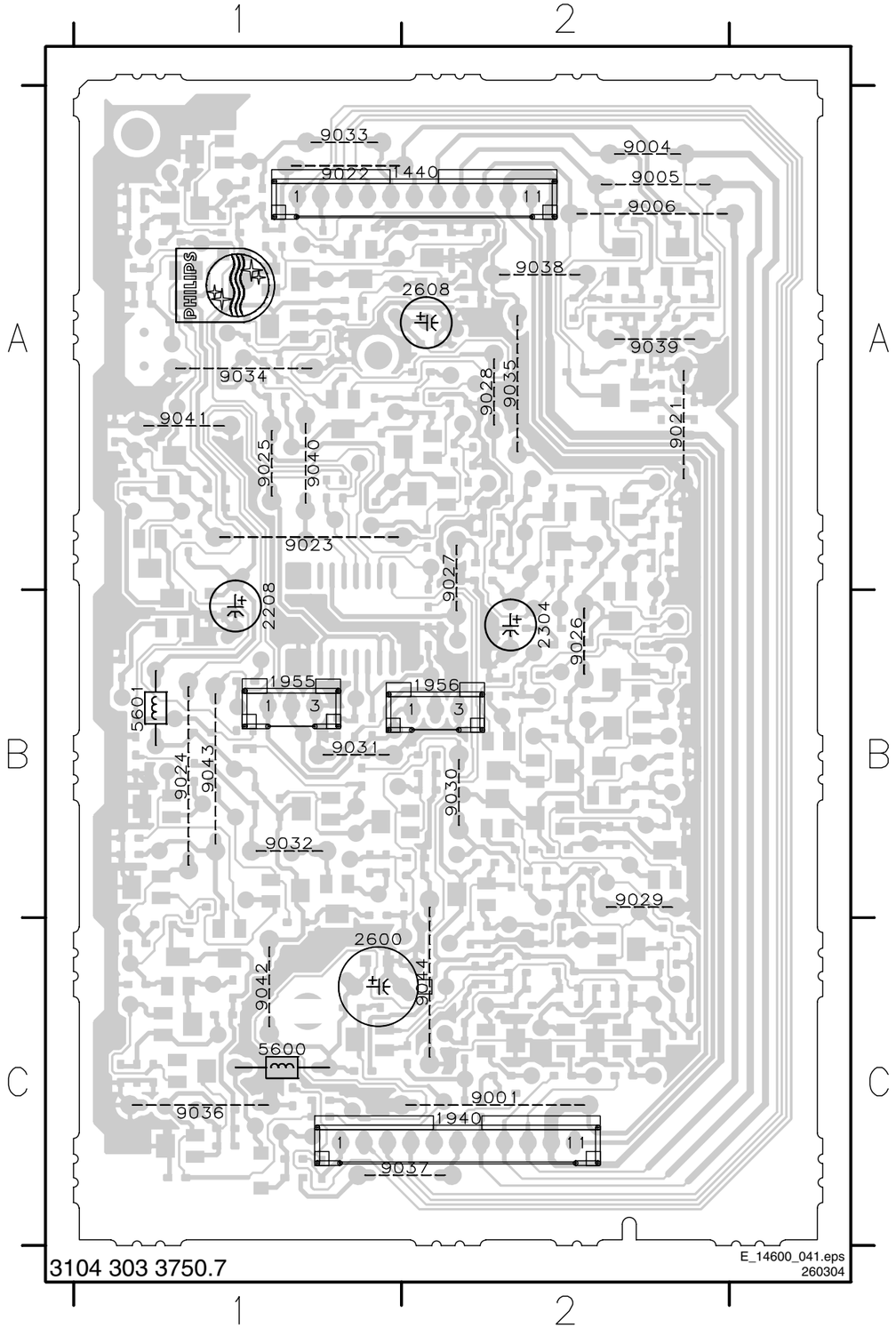
2300 C5 I428 E5
2304 C7 I430 E4
2400 E3 I432 F5
2410 F5 I434 F5
2412 F6 I436 F6
2414 F6 I438 E7
2416 F8 I440 E8
2418 E8 I442 E8
2420 F8 I444 F9
2422 F9 I446 E9
2424 F10 I448 F9
2603 C7 I450 E10
2604 C9 I453 E5
3300 C5 I454 C5
3302 C5 I455 F6
3304 B6 I456 F7
3306 C6 I457 E10
3308 B6
3310 C6
3312 C7
3316 B7
3318 C7
3320 C8
3322 B8
3324 B8
3326 C8
3328 C9
3330 C9
3400 F2
3402 E2
3404 F2
3406 E4
3408 F3
3410 F3
3418 E4
3420 F4
3422 E4
3424 E5
3426 F5
3428 D5
3430 E5
3432 F5
3434 F6
3436 E6
3438 F6
3440 E7
3442 F7
3444 E8
3446 F8
3448 E8
3450 F8
3452 E9
3454 F9
3456 F9
3458 E10
3460 F10
7300 B6
7400 E2
7408 E4
7410 E5
7412 F5
7414 E6
7416 F7
7418 E7
7420 E9
7422 E10
7502 C8
7503 C6
7504 E3
I300 C6
I302 C7
I304 C8
I306 C7
I308 C9
I310 C9
I312 B6
I314 B6
I316 C6
I400 E2
I402 F3
I412 F3
I414 E3
I426 C4

Layout Auto SCAVEM Panel (Top Side)

1440	A2	2208	B1	5600	C1	9005	A2	9023	A1	9027	A2	9031	B1	9035	A2	9039	A2	9043	B1
1940	C2	2304	B2	5601	B1	9006	A2	9024	B1	9028	A2	9032	B1	9036	C1	9040	A1	9044	C2
1955	B1	2600	C1	9001	C2	9021	A2	9025	A1	9029	B2	9033	A1	9037	C1	9041	A1		
1956	B2	2608	A2	9004	A2	9022	A1	9026	B2	9030	B2	9034	A1	9038	A2	9042	C1		



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Layout Auto SCAVEM Panel (Bottom Side)

2000	C1	2014	B2	2038	A2	2400	A1	2424	B1	2605	B1	3010	C1	3026	C2	3042	C2	3058	C2	3074	B1	3090	A2	3110	A2	3123	A1	3131	A1	7410	B1
2002	C1	2016	B2	2040	A2	2410	B1	2500	B1	2606	A2	3012	C1	3028	C2	3044	C2	3060	B2	3076	B2	3091	A1	3112	A2	3124	A1	3132	A1	7412	B1
2003	C2	2018	B2	2041	A2	2412	B1	2502	B2	2607	C2	3014	C1	3030	C2	3046	C2	3062	B2	3078	B1	3092	A2	3114	A2	3125	A1	3133	A1	7414	B1
2004	C1	2020	B1	2200	A1	2414	B1	2503	A1	3000	C1	3016	C1	3032	C2	3048	B2	3064	B1	3080	B2	3093	A2	3116	A2	3126	A1	3134	A1	7416	B1
2006	C1	2022	A1	2202	A1	2416	B1	2504	A1	3002	C1	3018	C2	3034	C2	3050	C2	3066	B2	3082	B2	3094	A2	3118	A2	3127	A1	3135	A1	7418	B1
2008	C2	2024	B2	2210	C1	2418	C1	2602	B2	3004	C1	3020	C1	3036	C2	3052	B2	3068	B1	3084	A2	3096	A2	3120	A2	3128	A1	3136	A1	7420	C1
2010	C2	2026	A2	2212	C1	2420	B1	2603	B1	3006	C1	3022	C1	3038	C2	3054	B2	3070	B1	3086	A2	3106	A2	3121	A1	3129	A1	3137	A1	7422	B1
2012	C2	2028	A1	2300	B1	2422	C1	2604	A1	3008	C1	3024	C1	3040	C2	3056	B2	3072	B2	3088	B2	3108	A2	3122	A1	3130	A1	3138	A1	7500	A2
																												3200	A1	7501	A1
																												3202	A1	7502	A1
																												3204	A2	7503	B1
																												3206	A2	7504	A1
																												3208	A2	7505	A1
																												3210	A1	9000	B2
																												3212	A2	9002	C2
																												3214	A2	9003	C2
																												3216	A1	9007	C2
																												3218	A1	9009	C2
																												3220	A2	9010	C1
																												3222	A2	9011	C1
																												3224	A2	9020	A2
																												3226	A2	9045	A2
																												3228	A1	9046	C1
																												3230	A2	9047	C2
																												3232	A2		
																												3234	A2		
																												3236	A2		
																												3238	A2		
																												3240	A2		
																												3242	A1		
																												3244	A1		
																												3254	C1		
																												3300	B1		
																												3302	B1		
																												3304	B1		
																												3306	B1		
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																												3402	A1		
																												3404	A1		
																												3406	B1		
																												3408	A1		
																												3410	A1		
																												3418	B1		
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																												3436	B1		
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																												3440	B1		
																												3442	B1		
																												3444	C1		
																												3446	B1		
																												3448	C1		
																												3450	B1		
																												3452	C1		
																												3454	C1		
																												3456	C1		
																												3458	B1		
																												3460	C1		
																												3500	B2		
																												3502	B2		
																												3600	C2		
																												3999	B2		
																												6000	C2		
																												7000	C1		
																												7002	C1		
																												7003	A1		
																												7004	C1		
																												7005	A1		
																												7006	C2		
																												7007	A1		
																												7008	C2		
																												7010	C2		
																												7012	C2		
																												7014	B2		
																												7016	C2		
																												7018	B2		
																												7020	B2		
																												7022	C2		
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																												7028	A2		
																												7030	B2		
																												7032	A2		
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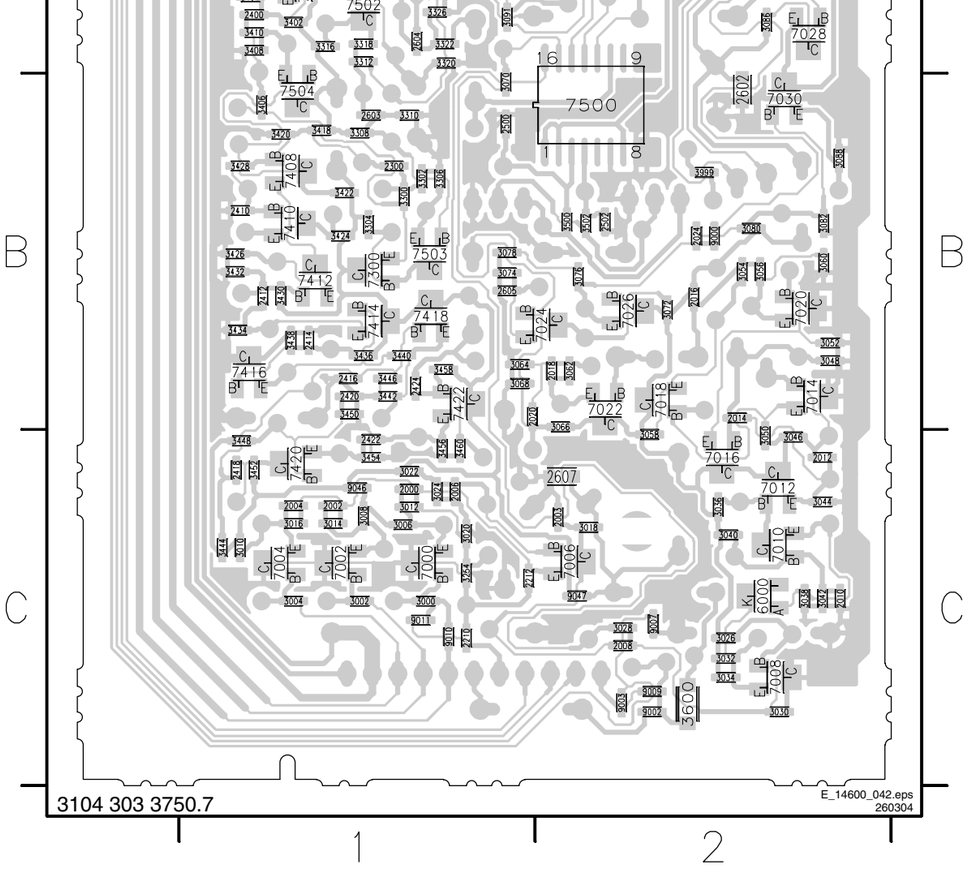
																												7040	A2		
																												7042	A2		
																												7200	A2		
																												7202	A2		
																												7204	A2		
																												7208	A2		
																												7300	B1		
																												7400	A1		
																												7402	A2		
																												7408	B1		



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8. Alignments

Index of this chapter:

8.1 General Alignment Conditions
8.2 Hardware Alignments
8.3 Software Alignments
8.4 Option Settings

8.1 General Alignment Conditions

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage: 230 V_{AC} (± 10 %), 50/60 Hz.
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 20 to 30 minutes.
- Measure the voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
  Caution: never use the cooling fins/plates as ground.
- Test probe: Ri > 10 Mohm, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform the alignments.

Perform all electrical adjustments with the following start settings (for all CRTs):

- Set LIGHT SENSOR "off", by setting ACTIVE CONTROL to "off" with the remote control.
- Set CONTRAST to "75", BRIGHTNESS to "42" and COLOUR to "54" (via PICTURE menu).
- Set COLOUR ENHANCEMENT to "off" (via PICTURE menu).
- Set DIGITAL OPTIONS to "Pixel Plus" (via PICTURE menu), unless otherwise stated (for sets without "Pixel Plus" (= Eagle), set to "Natural Motion").
- Set DYNAMIC CONTRAST to "off" (via PICTURE menu).
- Set CATHODE DRIVE at "15" (via SAM - Alignments - General - Drive - Cathode).

8.1.2 Adjustment Sequence

Use the following adjustment sequence:

1. Set the correct TV-set "options" (after storing, restart the set!).
2. Rough adjustment of "Vg2".
3. Rough adjustment of "Focus".
4. Rough adjustment of "Geometry".
5. Allow the set to warm up.
6. Accurate adjustment of "Vg2" and "Focus".
7. Accurate adjustment of "Geometry".
8. Software alignments (cut-off, cathode drive, peak white, white drive, etc).

8.2 Hardware Alignments

Note: The Service Alignment Mode (SAM) is described in chapter 5 of the Service Manual. Menu navigation is done with the "CURSOR UP, DOWN, LEFT or RIGHT" keys of the remote control (RC) transmitter.

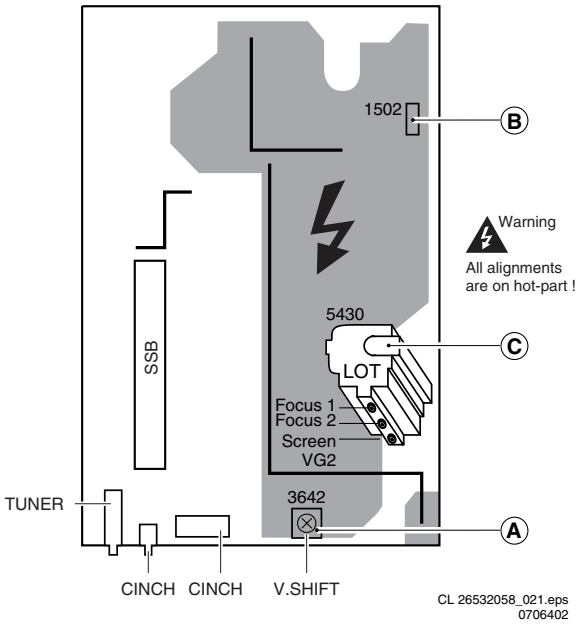


Figure 8-1 Top-view LSP

8.2.1 Vg2 Adjustment

In the frame-blanking period of the R, G, and B signals applied to the CRT, the "HOP" video processor inserts a measuring pulse with different DC levels. Measure the black level pulse during the vertical flyback at the RGB cathodes of the CRT.

1. Go, via the MENU key, to the normal user menu, select "PICTURE", and set "CONTRAST" and "BRIGHTNESS" to "0".
2. Activate the SAM.
3. Connect the RF output of a pattern generator to the antenna input. Test pattern is a "black" picture (blank screen on CRT without any OSD info).
4. Set the channel of the oscilloscope to 20 V/div and the time base to 20 us/div. Use external triggering on the vertical pulse
   Caution: use a trigger point at the "**cold**" side!.
5. Ground the scope at the CRT panel ("**cold**" side) and connect a 10:1 probe to one of the cathodes of the picture tube socket (see diagram F).
6. Measure the cut-off pulse during first full line after the frame blanking. You will see two pulses, one being the cut-off pulse and the other being the white drive pulse. Choose the one with the lowest value; this is the cut-off pulse.
7. Select the cathode with the highest V_{DC} value for the alignment. Adjust the V_{CUTOFF} of this gun with the SCREEN (lower) potentiometer on the LOT to the correct DC-value, tolerance is +/- 3 V_{DC} (align the Vg2 potmeter first till the flyback lines are just visible and then slowly turn back until they are gone).
   - 29 inch (4:3): 160 V for LGPD and Samsung.
   - 32 inch (16:9): 160 V for LGPD or 170 V for MEC.
   - 34 inch (4:3): 160 V for LGPD/Toshiba or 165 V for Thomson.
8. Restore "CONTRAST" to "75" and "BRIGHTNESS" to "42".

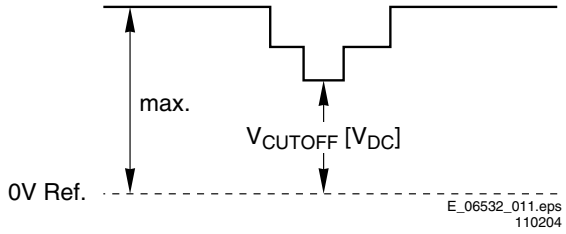


Figure 8-2 Waveform Vg2 alignment

Method 2 (without oscilloscope)
Note: Use this software driven alignment **only** in cases when there is no oscilloscope available, because of the high spread and tolerances.
1. Enter SAM. To enter SAM, press the following key sequence on the remote control transmitter: 062596 directly followed by 'STATUS/EXIT' (do not allow the display to time out between entries while keying the sequence.)
2. Select 'Alignments.'
3. Select the 'General' sub menu.
4. Set 'Vg2 Test Pattern' to 'On'
5. You will now receive OSD feedback during Vg2 alignment.
6. First, turn the Vg2 potmeter on the LOT to the left. OSD will read '**Out/High**.'
7. Turn the Vg2 potmeter slowly clockwise until the OSD toggles between '**In/High** and **In/ Low**.' This is the correct value.

8.2.2 Focus alignment

Notes:
- Tune the set to a "circle with crosshatch" test pattern (use an external video pattern generator).
- Choose picture mode "NATURAL" with the "SMART PICTURE" button on the remote control transmitter.
- **ELDOR** LOT outline:
  - Focus 1 (F1) = Static alignment (black wire).
  - Focus 2 (F2) = Dynamic alignment (red wire).

Focus method for Philips 32 inch tube with bleeder gun
You can recognize a CRT with bleeder gun by its type number. Example:
- W76ERF**042**X044= with standard gun.
- W76ERF**052**X044= with bleeder gun.
- W76ERF**062**X044= with bleeder gun.

You can also recognize a bleeder gun by the **ceramic** rectangular plate (this is the bleeder resistance) you will see inside the gun (viewed from above).

1. Start the alignment with the STATIC focus (upper potmeter) turned to the **left** and the DYNAMIC focus (middle potmeter) to the **right**.
2. Adjust the DYNAMIC focus until the horizontal lines at the centre of the screen have minimum width, without introducing a visible haze.
3. Adjust the STATIC focus until the vertical lines at the sides of the screen have minimum width, without introducing a visible haze.
4. Adjust the DYNAMIC focus until the horizontal lines at the centre of the screen have minimum width, without introducing a visible haze.
5. Check overall spot performance and repeat steps 3 and 4 to achieve the best result.

Focus method for all other tubes
1. Start with the STATIC and DYNAMIC focus potentiometers on the LOT at **midway**.
2. Adjust the STATIC focus until the vertical lines at the sides of the screen have minimum width, without introducing a visible haze.
3. Adjust the DYNAMIC focus until the horizontal lines at the centre of the screen have minimum width, without introducing a visible haze.
4. Check overall spot performance and repeat steps 2 and 3 to achieve the best result: a compromise between minimal visible haze at the middle of the screen and sharp lines at the edges of the screen.

8.3 Software Alignments

8.3.1 Introduction

With the software alignments, it is possible to align the Geometry, White Tone, and Tuner IF settings.
Put the set in the SAM (see chapter 5). The SAM menu will now appear on the screen. Select, via **ALIGNMENTS**, one of the sub-menus. They are explained below in the sequence of the sub-menus.

Notes:
- All changes to menu items and alignments must be stored manually.
- If the OPTION CODES have been changed **and stored**, the set has to be switched "OFF" and "ON" using the mains switch to activate the new settings (when switching via Standby, the option code settings are NOT read by the microprocessor).
- If an empty EAROM (permanent memory) is detected, all settings are set to pre-programmed default values.

8.3.2 GENERAL

VG2 TEST PATTERN
In this sub-menu, you can turn "On" the OSD feedback for the Vg2 alignment (see chapter 8.2.1).

ADJUST PEAK WHITE LIMITER
Fixed setting: "9".

EHT COMPENSATION
Enter value "0" for the all picture tubes.

SOFT CLIPPER
Fixed setting: “Pwl + 0%”

LUMA GAIN
- For sets without Columbus Comb Filter: “2”.
- For sets with Columbus Comb Filter: “1”.

IF AFC
Supply, via an external video generator (e.g. PM5518), a TV signal with strength of at least 1 mV and a frequency of 475.25 MHz. Use system BG if possible, otherwise match the system of your generator with the received signal in the set.

Alignment procedure:
1. Go to the user "Installation" menu.
2. Select "Manual Installation".
3. Tune the TV-set to the system and frequency described above via "Search" - "475" - "OK".
4. If the frequency, showed in the line "Fine tune", is between 475.18 MHz and 475.31 MHz, you **do not** need to re-adjust the "IF AFC".
5. If not, adjust the frequency in the "Fine tune" line to 475.25 MHz and "Store" the program (this is **very important** because this will disable the AFC algorithm).
6. Now go to the SAM and select ALIGNMENTS - GENERAL - IF AFC.

7. During the IF AFC parameter adjustment, one can see OSD feedback in the top of the screen.
8. This OSD feedback can give 4 kind of messages:

Table 8-1 OSD feedback of AFC alignment

AFC-window	AFC-frequency
Out	High
In	High
[In]	[Low]
Out	Low

1. The first item (IN or OUT) informs you whether you are in or out the AFC-window.
2. The second item (HIGH or LOW) informs you about whether the AFC-frequency is too high or too low.
3. First, you must align the IF AFC parameter such that you come into the AFC-window (= IN).
4. Then you must look for the point where the IF AFC parameter changes from HIGH to LOW. This level is the value you are looking for.
5. After adjustment, STORE the value.
6. Now return to the user "Installation" menu.
7. Select "Manual Installation" - "Search" - "475" - "OK" and "Store". This will set the AFC "ON" again.

Service tip: If you do not trust the frequency accuracy of your service generator, connect it to a "good" TV set and check it with the "Fine tune"-line.

IF LPRIME AFC
Use the same procedure as for the IF AFC alignment, but set the video generator to SECAM L/L' (only necessary for countries that have or can receive this system).

TUNER AGC
1. Set the external pattern generator to a colour bar video signal and connect the RF output to the aerial input. Set the amplitude to 10 mV and set the frequency to 475.25 MHz.
2. Connect a DC multimeter between pin 1 and the shielding of the Tuner (item 1200 on the LSP).
3. Adjust the TUNER AGC value (default value is 25) with the LEFT/RIGHT cursor keys until the voltage at pin 1 of the tuner lies between 3.8 and 2.3 V.
4. STORE the alignment.

TUNER AGC TUNER 2 (only for sets with DW/PIP)
Use the same procedure as described above (under TUNER AGC) with the set switched to the DW source. Measure on pin 1 of the DW Tuner (this is only applicable for sets with 2-tuner DW execution).

BLEND INTENSITY
Use this alignment when you replace the microcontroller or the HOP. It aligns the level of transparency of the menu-picture blended into the main-picture.
Position the "BRIGHTNESS", "CONTRAST", and "COLOUR" setting in the middle position (via the user PICTURE menu).
1. Apply a signal with a 100 % white video-pattern.
2. Connect an oscilloscope to pin 8 of connector 1298 of the CRT panel and measure the Red output level.
3. Align the BLEND INTENSITY parameter such, that the blended signal is 65 % of the black-white amplitude. In practice, this is about 1.3 V (blended signal) versus 2 V (full white signal).
4. The parameter can be adjusted in between "0" and "31".

8.3.3 DRIVE (Colour Alignments)

Note: Switch off all (available) colour-influencing features (e.g. set the TV in ECO-mode).

Method 1 (with colour analyser):
1. Set, via the user menu, the "Contrast" to "100".
2. In SAM, select TEST PATTERN and turn it ON. During the following alignments, you will see a white block in the middle of the screen. Measure with the colour analyser on this area.
3. Set, via the user menu, the "Brightness" to a value between 350 and 400 Nit (rough setting, do not store!).
4. Select CATHODE and enter the value "15" (for all picture tubes).
5. Set the RED, GREEN and BLUE default values to "32".
6. RED BL OFFSET: the Black Level can be aligned very precisely here. The default value is "7".
7. GREEN BL OFFSET: the Black Level can be aligned very precisely here. The default value is "7".
8. Select a COLOR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
9. Adjust the white level via RED, GREEN, and BLUE, according to the values in table "White levels".

Table 8-2 White levels

Colour Temp.	Cool	Normal	Warm
X	256	266	289
Y	264	274	299

Method 2 (without colour analyser):
If you do not have a colour analyser, you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).
1. Set, via the user menu, the "Contrast" to "100".
2. Select CATHODE and enter the value "15" (for all picture tubes).
3. RED BL OFFSET: the Black Level can be aligned very precisely here. The default value is "7".
4. GREEN BL OFFSET: the Black Level can be aligned very precisely here. The default value is "7".
5. Select a COLOUR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
6. Set the RED, GREEN and BLUE default values according to the values in the "Tint settings" table.

Table 8-3 Tint settings

	Δ Cool	Normal	Δ Warm
R	- 4	39	+ 6
G	0	33	0
B	+ 3	49	- 8

8.3.4 LUM. DEL. (Luminance Delay)

With this alignment, you place the luminance information exactly on the chrominance information (brightness is pushed onto the colour). Use a colour bar/grey scale pattern as test signal.
- **LUM. DELAY PAL BG:** Apply a PAL BG colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position.
  Default value = ”8” for PixelPlus2 sets or “9” for non-PixelPlus2 sets.
- **LUM. DELAY PAL I:** Apply a PAL I colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position.
  Default value = “10” for PixelPlus2 sets or “9” for non-PixelPlus2 sets..
- **LUM. DELAY SECAM:** Apply a SECAM colour bar/grey scale pattern as a test signal. Adjust this parameter until the transients of the colour part and black and white part of the test pattern are at the same position.

Default value = “9” for PixelPlus2 sets or “11” for non-PixelPlus2 sets..

- **LUM. DELAY BYPASS:** apply a NTSC colour bar/ greyscale pattern as a test signal. Adjust this value until the transients of the colour and black & white part of the test area are at the same position.
  Default value = “7” for PixelPlus2 sets or “10” for non-PixelPlus2 sets..

8.3.5 GEO-NOR (Normal Geometry)

Note: Use for all geometry alignments an **external** pattern generator with a geometry pattern (e.g. crosshatch).

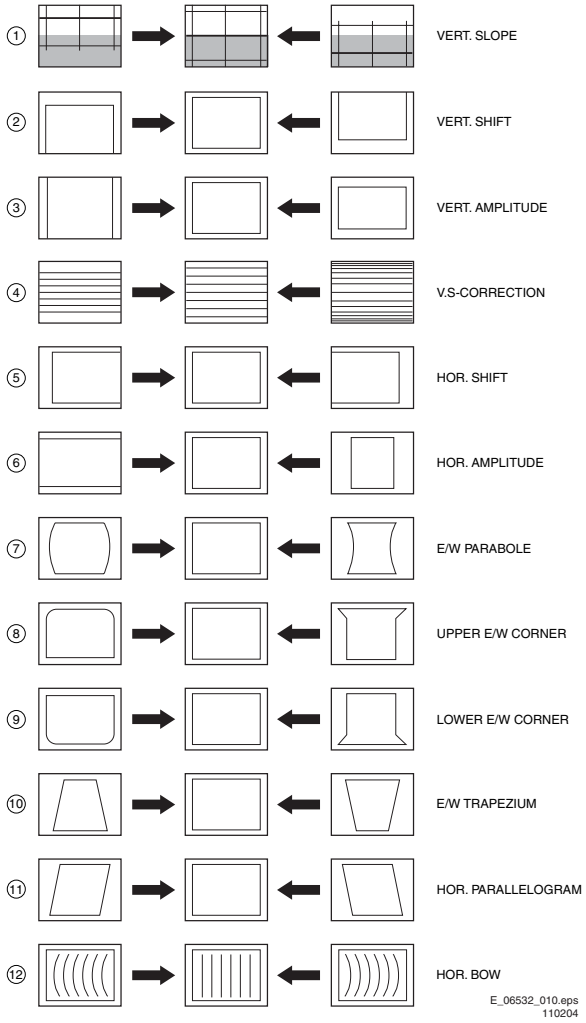


Figure 8-3 Geometry Alignments

Service tip: When the set is equipped with a rotation coil, use this menu item to check its correct alignment. If alignment is not correct, go to the INSTALLATION menu, choose SETUP, press OK, and choose PICTURE TILT. With the use of a crosshatch test pattern, align it to a correct horizontal picture.

V. SLOPE

Align the zero crossing of the frame deflection to the mechanical middle of the picture tube.

1. First, set the start conditions for the sets according to the table “Vertical S-Correction default value”. Position the boundary-stripes of the test pattern on the edges of the picture tube.
2. Align V. SLOPE (during alignment, the lower half of the picture is blanked) such, that the middle line of the test pattern is matched with the edge of the pattern transient in the middle of the picture.
3. Repeat the alignment if necessary.

Table 8-4 Vertical S-Correction default value

Picture Tube	V. S-Correction default
28" RF 16:9 Mk2	16
29" RF 4:3	32
32" RF 16:9	16
32" RF 16:9 Bleeder	16
32" RF 16:9 EMEC	27
32" RF 16:9 DOD-2	20
34" RF 4:3 Toshiba / LG.Philips	31 / 28
36" RF 16:9	20

V. SHIFT AND V. AMPLITUDE (vertical alignment)

Align the vertical centre and height of the picture.

1. Use V. AMPLITUDE to align the vertical amplitude so that the entire test pattern is visible.
2. Set V. SHIFT to value "32".
3. Connect a voltmeter (V_{DC}) between R3624 and "hot" ground.
4. Adjust the DC voltage to "0" with potmeter R3642 (see figure 8-1).
5. Use V. SHIFT again to align the test pattern roughly vertically in the middle.
6. Repeat the alignment if necessary.

V. S-CORRECTION

Align for equal blocks on top, middle, and bottom of the picture tube.

Align V. S-CORRECTION such that a block at the top (or bottom) of the picture has the same height as a block in the middle of the picture.

H. SHIFT AND H. AMPLITUDE (horizontal alignment)

1. Use H. AMPLITUDE to align the horizontal amplitude so that the entire test pattern is visible.
2. Use H. SHIFT to align the picture horizontally in the middle.
3. Repeat the H. AMPLITUDE alignment if necessary.

Note: In case the horizontal linearity in wide-screen mode is out of tolerance, add a "DC-shift correction" panel (3104 328 06230) to connector 1419 of the DAF-panel [diagram I]. On the DC-shift panel, cut diode **6433** for correction to the right or diode **6432** for correction to the left.
Caution: Be sure to switch "OFF" the set first. *Never* plug in a not pre-aligned module in a playing set!

EAST/WEST ALIGNMENT

1. Use EAST/WEST PARABOLA to align the vertical lines until straight.
2. Use UPPER EAST/WEST CORNER to align the vertical lines in the upper corners until straight.
3. Use LOWER EAST/WEST CORNER to align the vertical lines in the lower corners until straight.
4. Use EAST/WEST TRAPEZIUM to align for a rectangular.
5. Use HORIZONTAL BOW to correct the E/W parabola such, that it becomes symmetrical.
6. Use HORIZONTAL PARALLELOGRAM to align for straight vertical lines if necessary.

Repeat steps 1 to 6 if necessary.

8.3.6 GEO-4:3 (4:3 geometry alignment in 16:9 sets)

1. Use EAST/WEST PARABOLA to align the vertical lines until straight.
2. Use UPPER EAST/WEST CORNER to align the vertical lines in the upper corners until straight.
3. Use LOWER EAST/WEST CORNER to align the vertical lines in the lower corners until straight.

8.3.7 GEO-SW (Super Wide geometry alignment in 16:9 sets)

You only need to set the following values (if the normal geometry alignment has been performed correctly):
1. V. S-CORRECTION: enter value of the NORMAL GEOMETRY alignment.
2. H. AMPLITUDE: enter value of the NORMAL GEOMETRY alignment subtracted by "1".
3. EAST/WEST PARABOLA: enter value of the NORMAL GEOMETRY alignment.

8.3.8 GEO-100HZ (Digital Scan geometry alignment)

As all alignments are done in Pixel Plus mode (at 75 Hz), the 100 Hz mode needs an extra alignment:
- Select GEO-100HZ. The set automatically switches to 100 Hz mode.
- V. SLOPE: match the middle line of the test pattern with the upper edge of this blanking picture.
- After the alignment, return to the previous menu. The set automatically returns to "Pixel Plus" mode.

8.4 Option Settings

8.4.1 Introduction

The microprocessor communicates with a large number of I2C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known by the option codes.
- You can set the "hardware related" options via the SAM - ALIGNMENTS - OPTIONS or OPTION NUMBERS menu.
- You can set the "software related" options via the SAM - DEALER OPTIONS menu.

Notes:
- After changing the option(s), save them with the STORE command.
- The new option setting is only active after the TV is switched "off" and "on" again with the AC power switch (the EAROM is then read again).

8.4.2 DEALER OPTIONS

Select this sub-menu to set the initialisation codes (= options) of the set via text menu's.

Table 8-5 Dealer options overview

Menu name	Subjects	Options	Physically in set
Personal Options	Picture Mute	Yes	Picture (blue) mute active in case no picture detected
		No	Noise in case of no picture detected
	Virgin Mode	Yes	TV starts up (once) with language selection menu after mains switch on for the first time (virgin mode)
		No	TV does not start up (once) with language selection menu after mains switch on for the first time (virgin mode)
	Auto Store Mode (only for EU and AP-PAL sets)	None	Autostore mode disabled (not in installation menu)
		PDC-VPS	Autostore mode via ATS (PDC/ VPS) enabled
		TXT page	Autostore mode via ACI enabled
		PDC-VPS-TXT	Autostore mode via ACI or ATS enabled
	TXT Preference (only for EU and AP-PAL sets)	TOP	Preference to TOP Teletext
		FLOF	Preference to FLOF Teletext

8.4.3 SERVICE OPTIONS

Select this sub-menu to set the initialisation codes (= options) of the set via text menu's.

Table 8-6 Option overview

Menu-item	Subjects	Options	Description
Dual screen	PIP/Dual Screen	Yes	Feature present.
		No	Feature not present.
	Text/EPG Dualscreen	Yes	Feature present.
		No	Feature not present.
	DS/PIP Tuner	Yes	Only selectable if Dual Screen option is set to "Yes"
		No	Feature not present.
Teletext	*Flash RAM*	Yes	Feature present.
		No	Feature not present.
	NexTView	None	Feature not present.
		Textguide only	Feature present, but only as text guide.
		Nextview 2c3	Feature present, for countries that support this.
Display	CRT Type	4 : 3	4:3 picture tube.
		16 : 9	16:9 picture tube.
	CRT size	28 / 32 / 36 29 / 34 / 38 30 / 37 / 42	CRT size (in inches). MEC= Panasonic, II= Mark 2
	Picture Rotation	Yes	Frame rotation circuitry present.
		No	Frame rotation circuitry not present .
Video repro	Featurebox type	1050i/1250i	HD input
		Eagle 1B	Eagle present (Pixel Plus).
		Eagle 1C	Eagle present (Pixel Plus 2).
	Lightsensor	Yes	Feature present.
		No	Feature not present.
	3D Combfilter	Yes	Feature present.
		No	Feature not present.
	Auto Scavem	Yes	Feature present.
		No	Feature not present.
	Improv. Noise Reduction	Yes	Columbus present
		No	Columbus not present
	Pixel Plus version	1	Sets without Columbus but with Eagle (1B)
		2	Sets with Columbus and Eagle (1C)
Source Selection	*AV3 2fH*	Yes	Not selectable yet
		No	
	AV4 2fH	Yes	Not selectable yet
		No	
	1152i	Yes	Feature present
		No	Feature not present.
Audio Repro	Dolby	None	Set without Dolby
		Pro Logic	Set with Dolby ProLogic
		Virtual	Sets with Virtual Dolby
	Rear speakers	Speakerless	Virtual Dolby (without rear speakers)
		Cordless	Wireless active surroundbox present
	Subwoofer present	Yes	Feature present
		No	Feature not present
	Acoustic system	None, FL9-DAS, FL11, FL12, PV02, FL13, Soft Designline, Tech Designline.	Indicates the cabinet styling
	AVL	On	Automatic Volume Limiter 'on'
		Off	Automatic Volume Limiter 'off'
Miscellaneous	*Home Cinema*	Yes	Set with Home Cinema Link (EU only)
		No	Set without Home Cinema Link
	Integrated RC	Yes	Control pheripheral equipment via TV IR receiver (EU only).
		No	Feature not present.
	Tuner type	UV1316	Set with Philips tuner.
		TEDE9	Set with Alps tuner.
	38.0 IF	Yes	Feature present.
		No	Feature not present.
	Integrated DVD	Yes	Feature present.
		No	Feature not present.
	Integrated HDD	Yes	Feature present.
		No	Feature not present.
	Integrated Radio	Yes	Feature present.
		No	Feature not present.
	P50 DVD menu line	Yes	DVD control via user menu with TV IR receiver (only in sets with Home Cinema).
		No	Feature not present.
Option no.	Group 1		Group 1 option code overview (see CRT sticker).
	Group 2		Group 2 option code overview (see CRT sticker).

Note: Items in *Italic* are either fixed or not present.

8.4.4 OPT. NO. (Option numbers)

Select this sub menu to set all options at once (expressed in two long strings of numbers).

An option number (or option byte) represents a number of different options. When you change these numbers directly, you can set all options very fast. All options are controlled via eight option numbers.
When the EAROM is replaced, all options will require a re-setting. To be certain that the factory settings are reproduced exactly, you must set both option number lines. You can find the correct option numbers on a CRT sticker inside the TV set.

Example: The CRT sticker in the 28PW9502/12 gives the following option numbers (**Note:** this is just an example):
12660 16672 49984 00000
04118 00001 00032 18250
The first line (group 1) indicates options 1 to 4, the second line (group 2) options 5 to 8 (see tables below).
Every 5-digit number represents 16 bits (so maximum number can be 65536 if all options are set).
When all the correct options are set, the sum of the decimal values of each Option Byte (OB) will give the option number.

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:

9.1 Introduction
9.2 Block Diagram
9.3 Feature Box
9.4 PICNIC
9.5 Columbus
9.6 FEM (Falconic Embedded Memory)
9.7 Eagle
9.8 Abbreviation list
9.9 IC Data Sheets

Note:

- Only **new** circuits, compared to its predecessor the EM5.1, are described. For the other circuit descriptions, see the EM5.1 manual.
- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the diagrams in chapter 6 and 7. Where necessary, you will find a separate drawing for clarification.

9.1 Introduction

This chassis contains the following new features/components:

- FEM (Falconic Embedded Memories): is a new Falconic with internal Field memories and jagged line removal.
- Improved 2D/3D Comb filter: The new key components are Columbus and SDRAM. When SDRAM is used, a 3D comb filter (or temporal comb filtering) is possible. Without SDRAM, only 2D comb filtering, (or spatial comb filtering) is possible. This is improved with respect to the previous 2D comb filter.
- Improved noise reduction: This is a second function of the Columbus and SDRAM. Noise reduction is possible without SDRAM (2D) and with SDRAM (3D).
- Pixel Plus 2: Eagle 1B is replaced by Eagle 1C.
  - Algorithms for Horizontal LTI and Vertical LTI are improved.
  - Thin Line Control as part of the sharpness control.
  - Face Depending Peaking should allow less sharpness in faces different from the rest of the picture. This could be used to anti age faces versus the rest of the picture.
  - Vivid Colours 1 will result in more saturated colours.
  - The range/amount of Blue Stretch is extended.
  - More steps of Green Enhancement.
  - Improved Colour Dependent Sharpness.
  - Increased range of skin gain and skin tone.

The chassis consists of a full sized LSP/SSP combination and a smaller double sided four layer SSB, which is mounted on the SSP using a 80-fold SIMM connector. The main functionalities are:

- LSP: supply, deflection, and sound amplification.
- SSP: tuner input, SIMM interface, I/O, and interface provisions for extended functions such as PIP.
- SSB: core TV functionalities, being TXT/control, video and audio decoding, feature box, video featuring, and sync/ geometry control.

The LSP (single sided) is built up very conventional, with hardly any surface mounted components on the copper side. Similar with the EM3 (but different as with the MG-chassis), the EM5 LSP has a very large “hot” part, including both deflection coils.

The SSB is a high tech module (four layer, 2 sides reflow technology, full SMC) with very high component density and complete shielding for EMC-reasons. Despite this, it is designed in such a way, that repair on component level is possible. To achieve this, attention was paid to:

- The position of service test lands: most of them are at the Tuner side.
- Accessibility (Tuner side). If there are still problems with the accessibility, one can order an extension board (see parts list).
- Clearance around surface mounted ICs (for replacing).
- Detailed diagnostics and fault finding is possible via ComPair.

The availability of Double Window (DW) or Picture In Picture (PIP) depends on the model range. There are two different executions, depending on the number of tuners:

- One Tuner: The TV has only one tuner (on the LSP), so the PIP-picture can be either from this tuner or from an external AV-source.
- Two Tuners: In this case there are two separate tuners, so the main picture and the DW picture are independently selectable. The IF signal from the main tuner is processed on the SSB, while the IF signal from the second tuner is processed by a second BOCMA video processor on the DW-panel. The source selection is done via an I/O expander.

9.2 Block Diagram

For the block diagram see chapter 6 “Wiring Diagram, Block Diagrams, and Overviews”.

The Tuner (item 1200) is a PLL tuner and delivers the IF-signal, via audio & video SAW-filters, to the HIP (High-end Input Processor). The HIP has the following functions:

- IF modulation.
- Video source- and record select.
- Colour decoder.
- Synchronisation.

Seven video input/output connections (with audio connections) are available:

1. Front: interfaces CVBS, SVSH.
2. AV1: interfaces CVBS, RGB- and YUV-input (1fH)
3. AV2: interfaces CVBS and Y/C (meant for VCR-connection.)
4. AV3+AV4: interfaces YPbPr/RGB (HD) inputs (2fH.)
5. Monitor out: interfaces CVBS out.
6. Audio out: interfaces external front and surround speakers. (Audio out not available on 29PT9221)

After the HIP, we come to the part that is called the Feature box (diagram B3x):

- For Digital Scan, the PICNIC is required.
- For Natural Motion, the FALCONIC (or FEM) is required.
- For Pixel Plus, the EAGLE is required.

The HIP delivers YUV and sync signals to the PICNIC. This IC takes care of:

- Analogue to Digital conversion and vice versa.
- 50 to 100 Hz conversion.
- Panorama mode.
- Noise reduction (or via Columbus when present).
- Dynamic contrast.

Attached to the PICNIC is the Columbus chip. This 2D/3D Comb filter is used to separate chroma and luminance components out of a CVBS signal. Second function is noise reduction. It replaces the Comb filter that was attached to the HIP in the former chassis.

After the PICNIC, the (now 2fH) YUV-signals are fed to the FALCONIC (or FEM) for “Natural Motion” followed by the Eagle for “Pixel Plus” enhancement. The processed YUV signals (from Eagle or PICNIC) are, together with the sync-signals from

the PICNIC, then fed to the HOP (High-end Output Processor). This IC handles the video control and geometry part. The RGB-signals for TXT/OSD (from the microprocessor) are also inserted via the HOP. The video part delivers the RGB signals to the CRT-panel and the geometry part delivers the H-drive, V-drive, and a drive-signal for rotation.

Both deflection circuits are “hot” and located on the LSP. They are driven by the HOP. To make a galvanic separation, the Line Drive is driven via transformer 5410 and the Frame Drive via transformer 5621.The horizontal output stage generates some supply voltages and the EHT-, focus- and Vg2-voltages.

The RGB amplifiers on the CRT-panel are supplied with 200 V from the LOT.
The Scavem circuit modulates transitions of the Luminance (Y) signal on the horizontal deflection current, giving a sharper picture.

The sound part is built around the MSP34xx (Multi-channel Sound Processor) for IF sound detection, sound control and source selection. Dolby decoding is also done by the MSP. Amplification is done via a “class D” integrated power amplifier IC, the TDA7490.

The microprocessor, called OTC (OSD, Teletext and Control) takes care of the analogue TXT input- and output processing. The OTC, ROM, and RAM are supplied with 3.3 V, which is derived from the +5V2.
The NVM (Non Volatile Memory) is used to store the settings, one Flash-RAM contains the set software, the other Flash-RAM (7012) is for EPG, and the DRAM is used for storing the Teletext pages.

There is a separate Standby Supply, in order to reduce the Standby power consumption. During Standby, the Main Supply is switched “off” (via TS7529).
A relay (1550) is used to switch the degaussing circuit. It is switched “on” after set start-up and switched “off” by the uP after 12 s.
The Main Supply, an SMPS based on the “down-converter” principle, generates the 141 V (V_BAT) and the +/- 16 V for the audio part.
Note: Voltage V_BAT is not mains isolated (“hot”), but is alignment free.

9.3 Feature Box

The key components of the FBX are the following ICs:
9.4 PICNIC
9.5 Columbus
9.6 FEM (Falconic Embedded Memory)
9.7 Eagle

9.4 PICNIC

All FBX versions have the PICNIC as basic IC. All functions located in the PICNIC are therefore basic functions, and will be described briefly. These functions are completely controlled by the built-in microprocessor.

- **Clamp.** In the PICNIC, three analogue clamp circuits are integrated that assure a well defined DC level for the luminance (Y) and colour-difference (U, V) input signals.
- **AGC.** The AGC in the PICNIC consists of a digital controlled analogue variable gain amplifier with a gain range of 9.3 dB, and an algorithm that uses input derived from histogram data and the overflow detection. It is designed to assure an optimal ADC input range, for all input signals, and so having minimal quantisation noise.
- **Analogue pre and post filters.** The pre filters of the Feature Box are always the integrated filters of the PICNIC. The internal post filters of the PICNIC are never used.
- **ADC/DAC.** Analogue to Digital conversion is done with three identical 9-bit ADCs, and the Digital to Analogue conversion uses three identical 10-bit DACs. The Y signal is mapped on 9 bits for black-to-white range and has room for over- and undershoots by means of the 10th bit at the output DACs. The U and V channels are processed in 9-bit accuracy up to the CTI circuit that has a gain of 2, resulting in a 10-bit output that suits the 10 bit DACs.
- **Time Base Correction.** The Time Base Correction circuit simulates a fast acquisition line locked clock, while the actual system clock is locked to the input line frequency with a very large time constant. In this way the typical VCR problems linked to a one clock Feature Box can be solved, particularly the deflection circuit (in case of CRT) driven by the Feature Box can profit from this feature.
- **VCR detection.** The VCR detection of the PICNIC is an algorithm that detects the phase jumps (which occurs for instance with VCRs) to be able to correct the picture deviations. This detection is done by monitoring the PLL circuit in the PICNIC by the on-board microprocessor on several parameters.
- **Peaking.** The two dimensional peaking can boost or attenuate higher frequencies in both vertical and horizontal direction. The lowest setting is a 2D low pass. The higher settings make sharpening, but the resulting overshoots can clip relatively fast compared to the dynamic peaking, because there is no room for overshoot above white and under black. This peaking is done on field base.
- **Digital Noise Reduction (DNR).** The PICNIC accommodates three noise reduction circuits:
  - **Clinic.** This "clamp noise reduction" circuit consists of an adaptive temporal field recursive filter. It corrects the DC level of each line, when it is varying from field to field in the line segments with likely the least movement. It can be used to correct clamp errors that cannot be restored by conventional clamp circuits. The filter is completely autonomous for the user, who can only switch it “on” or “off”.
  - **Limeric** (this part is not used in case of Columbus). This spatial noise reduction circuit is targeted for reduction of the mid frequency noise spectrum, where adaptive filtering combines pixels around the centre pixel and pixels from the lines above in a recursive way. The quantity of noise reduction is user defined.
  - **2D Coring.** This circuit attacks spatial noise in a very drastic way without distinguishing noise from wanted resolution. It shaves away small details of any kind, depending on the amplitude of the detail and the user setting. So, it is advised to use this feature only at the lowest settings.
- **Histogram Modification.** Using histogram modification techniques in PICNIC, the contrast of the overall picture may be improved. From a TV scene, the distribution of all luminance values is taken (histogram). This histogram is used to calculate an optimal transfer curve for the particular scene, which is used to process the video digitally resulting in a picture with improved contrast (called “Dynamic Contrast”).
- **Auto Picture Control.** The PICNIC is prepared to make several APC functions in co-operation with the main software. This is made by giving relevant video quality data to main, and by giving several control ‘handles’ to main microprocessor. In this way, automatic picture quality settings depending on customer settings and video data can be made. The following items are prepared in the AutoTV:
  - **Automatic Picture Control.** This feature controls the settings for DNR, Limeric, coring, sharpness and histogram modification as a function of the noise figure and signal steepness information extracted from the PICNIC and from external information such as ambient light.
  - **Automatic Aspect Ratio Adaptation.** This AARA feature uses data from the black bar detection circuit to adapt vertical and horizontal amplitude to an aspect

ratio belonging to the display and does not show black bars. This is done by the control software. Auto Format is controlled via main software by reading out the black bar information from the FBX.

- **Field Rate Upconversion.** In order to remove large area flicker from the TV screen, the field-rate of the video is doubled by the Feature Box. A 50/60 Hz video input is converted to 100/120 Hz. The line frequency (16 kHz) is also doubled (32 kHz). When the video input contains fields A, B etc..., the conversion provides an AABB sequence scanning on the display. The actual up-conversion is done in the first Field Memory (FM1) by reading it twice at double speed, while writing once.
- **Input Phase.** The horizontal phase of the input video acquisition can be shifted to allow compensation for processing delay of other components in front of the Feature Box.
- **Miscellaneous Features.** To be sure that On Screen Display (OSD) is always readable, even when no video signal is received, the feature box can be switched to stable OSD mode. Free running but stable horizontal and vertical deflection drive signals will be generated, so that OSD information and PIP can be displayed jitter free, and thus clearly readable on the screen. Specially for tuning purposes and smooth channel switching a stable OSD mode is implemented that uses the horizontal time base correction combined with a slow PLL, and a small vertical catch window. This mode enables undisturbed reading of OSD while the set is tuning.

9.5 Columbus

9.5.1 Introduction

The Columbus is a combination of:
- A **2D/3D Comb filter** for both PAL and NTSC, and
- A **spatial/temporal noise reduction system** for both colour and luminance signals.

The Columbus 3D Comb filter uses digitalized CVBS, U, and V (or C) signals and can be used with or without an external 16 Mbit SDRAM. Without external 16Mbit SDRAM, 3D comb filtering and temporal noise reduction are not possible.

The noise reduction part of the Columbus is controlled by the FBX software using the SNERT interface (the “Limeric” noise reduction in the PICNIC is “off” in case of a Columbus application). The 2D/3D Comb filter part is controlled by the Main software using the I2C bus.

9.5.2 2D/3D Comb Filter

Introduction

The “3D Comb filter Columbus” is a combined 2D/3D Comb filter function that is part of the Columbus chip (item 7752). It is a comb filter for both PAL and NTSC.

The 3D Comb filter is used to separate chroma and luminance components out of a CVBS signal. It is of no use when the CVBS signal is a SECAM signal (SECAM signals cannot be combed) The Columbus chip can be used with or without 16 Mbit external SDRAM (item 7753). When an external SDRAM is connected to the IC, the Comb filter function can work in combined 2D/3D processing (depending on the detected pixel based motion). When no external SDRAM is connected, only 2D Comb filtering is possible.

The Columbus can comb the following standard signals:
- PAL B, PAL G, PAL H, PAL I, PAL D, PAL K: Colour standard PAL, Colour carrier at 4.43 MHz, field frequency: 50 Hz
- PAL M: Colour standard PAL, Colour carrier at 3.58 MHz, field frequency: 60 Hz
- PAL N: Colour standard PAL, Colour carrier at 3.58 MHz, field frequency: 50 Hz
- NTSC M: Colour standard NTSC, Colour carrier at 3.58 MHz, field frequency: 60 Hz

For NTSC signals, the PAL delay line must always be bypassed.

The following signals CANNOT be combed:
- Double Window signals or Multi PIP. For these signals, only one part or even no part of the signal is in relation with the burst. The part that is not in relation with the burst can become very blurred when combed by the Columbus Comb filter. Such a signal must be bypassed. Notch mode is not even an option since e.g. in double window, one part can be a PAL signal while the other part is NTSC or SECAM.
- In cases where a SECAM signal is presented to the Columbus Comb filter; both the luminance and UV path must be bypassed. The PAL delay line inside the Columbus cannot be used for SECAM signals so it must also be bypassed. The luminance path must have luminance at its input instead of CVBS. A chroma delay line outside Columbus must be used for SECAM signals. Reason for this: the Columbus PAL delay line halves the output of the chroma signals in case of SECAM.
- Y/C, YPbPr, and RGB signals do not have to be combed. So both the luminance and UV path must be bypassed. The PAL delay line will also be bypassed.
- In cases where the Columbus Comb filter does not receive a CVBS signal with burst at the right place according to the standard (this includes black and white signals without burst), phase correction results become unpredictable and the Comb filter must be set in bypass (= luminance path bypassed, UV path bypassed, PAL delay line bypassed)
- VCR signals cannot be combed and must be processed in notch mode, or bypassed.

Columbus Modes

The several modes of the Columbus 3D Comb filter are:
- Bypass mode.
- Band-Pass-Notch mode.
- 2D Comb filter modes.
  - Simple median.
  - Median.
- Field Comb filter mode.
- Frame Comb filter mode.

Bypass Mode

The 3D Comb filter can be set in bypass mode. In this mode, the CVBS, U and V signals are just bypassed to the output.

Band-Pass-Notch Mode

This is a mode where no Comb filtering is applied. A “Band Pass Filter” is used to filter the chroma information out of the CVBS signal. A “Notch Filter” is used to subtract the sub carrier out of the CVBS in order to make a luminance signal without chroma sub carrier.
In terms of cross colour and cross luminance, this mode has the worst performance of all. It is only used on these signals where no comb filtering can be applied (non-standard signals and most VCR signals for example).

2D Comb filter modes

A Comb filter does an action on a current pixel and a delayed pixel. When the delayed pixel is a line-delayed pixel, we talk about a “Spatial or 2D Comb Filter” (for NTSC the delay must be 1 line, for PAL it must be 2 lines).
Spatial or 2D Comb filters show problems on vertical colour transients and on single coloured lines. For these situations, extra hardware is added in the Columbus chip to avoid these kinds of problems. However even with these extra measures, there are still situations where the 2D Comb filter does not perform optimally (diagonal resolution and single lines with equal luminance content). In order to restrict the working area

of the 2D Comb filter to the frequencies where the sub carrier is present, a horizontal band pass filter always precedes a 2D Comb filter.
When a 2D Comb filter has no extra hardware to avoid problems at vertical colour transients (or this extra hardware is switched “off”), the Comb filter is called a “simple median filter”. When there is extra hardware to avoid these kinds of problems, the filter is called a “median filter”.

Field Comb filter mode
A Comb filter does an action on a current pixel and a delayed pixel. When the delayed pixel is a field-delayed pixel, we talk about a “Field Comb Filter”. Field Comb filters are only for PAL of commercial interest.
Field Comb filters show also problems on vertical colour transients and on motion. For the vertical transients, a hanging dots detector has been added, however the performance on vertical transients of the field Comb filter, even with this hanging dots detector, is worse than the performance of the 2D Comb filter. On motion, the field Comb filter performs very badly. A motion detector must detect the pixels where there is motion and on these pixels, the Comb filter must be forced back to 2D Comb filter mode. This switching back is not implemented with a hard switch, but with a motion controlled fader. When there is a lot of motion, the fader will take a lot of the 2D Comb filter output, when there is less motion, more field-combed signal will be taken.
A field Comb filter is also called a “vertical-temporal filter” because it filters in the vertical and temporal direction.

Frame Comb filter mode
A Comb filter does an action on a current pixel and a delayed pixel. When the delay is a frame, we talk about a “Frame Comb Filter”. For NTSC we need a delay of one frame, for PAL however the delay must be two frames.
Frame Comb filters have the best performance, but just like the Field Comb filter, they perform very badly on motion. A motion detector will have to detect motion and on these motion pixels, 2D Comb filtering will have to be applied. A frame Comb filter is a pure “temporal filter”.
The Columbus needs an external memory connected to it, before it can do a temporal or vertical-temporal Comb filter action. When no external memory is connected, field or frame Comb filtering is impossible.

Block Diagram
The signal CVBS-TXT that used to go to the “old” Comb filter (item 7307 in EM5.1E) is here re-routed via an emitter follower (7320) to the Y and C input of the HIP. The chroma demodulator in the HIP demodulates the CVBS to U and V signals. These signals are sent to the HIP output together with the CVBS signal. So, the HIP delivers CVBS (and not Y), U, and V to the PICNIC.
Note: All these signals are not combed and have no notch filter either, so there is a lot of cross color and cross luma present.

In the next block diagram, two main parts of the Columbus 2D/3D Comb filter can be seen:
- The upper part is what is called the luminance Comb filter. It tries to make an as clean as possible luminance signal out of the CVBS signal at the input.
- The lower part receives U and V signals (sequentially) that are normally only band pass filtered in front of the 3D Comb filter. It filters all left over luminance signals out of it, in order to make an as clean as possible U and V signal.

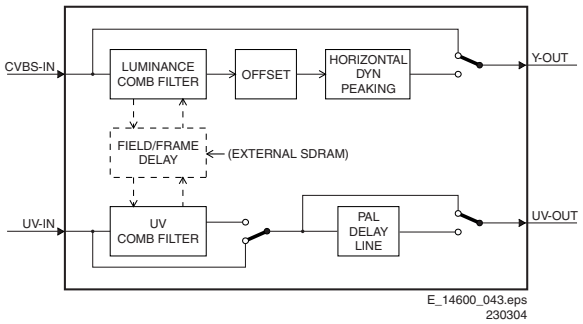


Figure 9-1 Columbus 2D/3D Comb filter block diagram

The Comb filter has two inputs. One is the CVBS where clean luminance (Y) will be extracted from; the other one is UV where a clean U and V signal will be extracted. Both input signals are **digital** signals.

The field or frame delay is used for the Field and Frame Comb filter mode. An external memory connected to the Columbus IC provides this delay.

Phase correction is done at the inputs of both the Comb filter blocks. There is a phase correction for spatial filtering (called the spatial phase corrector) and a separate phase correction on the signals used for temporal (Frame or Field) Comb filtering (called the temporal phase corrector).

The offset block receives the motion dependant 2D/3D Comb filtered signal as input. The black level of the luminance signal is restored and the result is output. The black level restoration is corrected continuously. However, on VCR signals, this restoration can become unstable. Therefore, on VCR signals, a fixed black level restoration value must be forced.

A horizontal dynamic peaking can be done on the luminance signal. This peaking is adaptive in order not to amplify any cross luminance distortion. It detects where there could be left over sub carrier in the luminance signal and reduces the peaking over there. The detection of the left over cross luminance is different depending on the pre-filter or post-filter mode.
The amount of peaking and coring can be chosen. The peaking algorithm behind it is a simplified copy of the luminance peaking of picnic. After the peaking block, the signal is output as clean luminance.

The bypass switches have the obvious purpose of bypassing the input signal, in case no Comb filtering is wanted.

A PAL delay line is added in the UV path. This is done because a delay line in front of the 3D Comb filter does need an extra vertical filter action on the UV signals. This vertical filtering deteriorates the vertical transient performance for colours. The Columbus Comb filter cannot undo this. However, this reduction in performance can be omitted by putting the PAL delay line after the 3D Comb filter block.
For PAL signals, the PAL delay line in front of the Columbus 3D Comb filter is bypassed and the Columbus delay line is switched “on”. In cases where the delay line in front of Columbus cannot be bypassed, the Columbus PAL delay line is bypassed.
For NTSC signals, the PAL delay line is bypassed as usual.

9.5.3 Noise Reduction and Noise Estimator

The noise reduction function is a sophisticated successor of the noise reduction module from the PICNIC-chip, also known as “LIMERIC”.

Besides the noise reduction part, the Columbus noise reduction module also comprises a noise estimator. This noise estimator (the LORE-noise estimator) is a new design with the ambition of more accuracy and with less control complexity than the existing noise estimators.

9.6 FEM (Falconic Embedded Memory)

The FEM IC (SAA4998) is the successor of the SAA4993H, and adds ”jagged line removal” and “embedded field memories” as new/improved features.

9.6.1 Motion Estimation/Compensation

The FEM utilizes a high quality motion estimator. The motion estimation is applied to eliminate the motion blur of current 100 Hz TV sets and to eliminate the motion judder of movies. This judder is visible on all television sets and even in a cinema. Particularly for movies (with only 25 pictures/second), the increased number of pictures helps to smoothen the motion. These improvements a.o. lead to a picture performance improvement on a global scale, with an optimal quality independent from the received standard (50/60 Hz and/or video/film) or display mode (field doubling/de-interlaced 1fV). Especially film judder removal from a 60 Hz input source, the so-called 3-2 pull down film mode, makes the FEM globally applicable.

9.6.2 4:2:2 processing

The colour data path in the FEM is implemented in 4:2:2 bandwidth (as in PICNIC). The 4:2:2 mode requires an Field Memory (FM1) of 16 bits wide.

9.6.3 Upconversion

The FEM is always used in combination with the Eagle. Therefore, the output is always adapted to the input of the Eagle. This 2fV/4fH signal is motion compensated. Only 3 out of 4 fields are correct motion compensated. The Eagle will only use these three correct motion compensated fields.

9.6.4 Dynamic Noise Reduction

For signals that have been affected by noise, improvement can be achieved by combining of the pixel values of the current and past fields of video. This is however only possible for those picture areas in which no movement occurs. If movement occurs in some area, only the information from the current field of video may be displayed for that area to prevent smearing, so noise reduction is not effective there.
To reduce loss of detail, the high frequencies can be bypassed. This can be done because the human eye is more sensitive to noise with low frequencies. The movement detection is implemented in the luminance channel and in the colour channel to reduce artefacts such as smearing.

9.6.5 Vertical Peaking

The vertical peaking circuit in FEM works on de-interlaced data, resulting in a double resolution (compared to PICNIC) high vertical frequency enhancement.

9.6.6 EDDI

EDDI is an Edge Dependent De-Interlacer. This improved de-interlacer, results in smaller jagged lines for video input sources (not for film sources!).

9.6.7 Strobe

Having a FEM in the data path, it is easy to create a still picture or freeze feature. A frame can be frozen once, or, using the strobe feature, repetitively after a certain programmable interval of time. The Eagle is used to make “still pictures”.

9.7 Eagle

The Eagle has the following features:

- **Vertical upscaler.** Two fully programmable vertical upscalers are implemented in the Eagle chip, one for the luminance signal, and one for the colour difference signals. However, the number of output lines is never allowed to exceed 1024 lines per field including blanking. This means that 1050i/1250i is still possible.
- **Vertical Zoom.** The vertical zooming is done with the vertical upscaler of the Eagle instead of using the FEM upscaling. Zoom factors varying from 1 to 8 can be selected. Vertical compression is possible in 1fV up to a factor of 2.
- **Interlacer and horizontal upscaler.** Two fully programmable horizontal upscalers are implemented in the Eagle chip, one for the luminance signal, and one for the colour difference signals.
- **Continuous horizontal zoom/compression.** The horizontal zooming is done with the interlacer and horizontal upscaler of the Eagle instead of the PICNIC upscaling. In the Eagle, a digital sample rate converter can provide horizontal video compression up to 50 %, and up to 8 times zoom. In compress mode, a part of the screen remains unused. In this case, parts of the display can be filled in with a grey value, a colour, or other signal source that bypasses the Feature Box (TXT or another compressed picture).
- **Panorama.** A panoramic horizontal distortion on the picture can be applied to make a screen-fitting picture, without having black side panels, or lost video. This is mainly used to fit 4:3 pictures in a 16:9 display with a resulting correct aspect ratio in the middle of the screen and stretched video at the left and right sides. The inverse feature is called “amaronap” and can also be applied.
- Sub pixel **Luminance Transient Improvement** (LTI): The Eagle contains a horizontal and a vertical sub pixel LTI.
- **Peaking**: In the Eagle both horizontal and vertical luminance peaking is implemented. The horizontal peaking equals the peaking of the PICNIC. The vertical peaking is an addition of two fixed and one 9-taps fully programmable peaking filters.
  - Horizontal luminance peaking: Peaking in Eagle can be used in two ways:
    a. The first way is to give the luminance a linear boost of the higher frequency ranges, which makes no distinction between small and large details or edges.
    b. The other way is to use the peaking dynamically, in order to boost smaller details and provide less gain on large details and edges. The effect is detail enhancement without creation of unnatural large over- and undershoots on large details and edges.
  - Vertical luminance peaking: There are three vertical peaking filters. Two fixed vertical peaking filter and one fully programmable vertical peaking filter. The three filters all have their separate gain setting before the results are added. To avoid excessive gain settings a high peak suppression can be set to avoid excessive output results.

- **Colour Dependent Sharpness** (CDS): The colour dependent sharpness circuit increases the luminance sharpness in saturated red and magenta parts. The reduction of the normal peaking can be switched “on/off”.

The below given colour features are implemented in the Eagle:

- **Digital Colour Transient Improvement** (DCTI): DCTI equals the PICNIC DCTI implementation with improved control range. The DCTI is done with Eagle i.s.o. PICNIC.
- **Skin tone correction**: The idea of Skin tone correction is to correct UV components corresponding to skin towards an “ideal” skin tone axis.
- **Blue Stretch**: This feature makes it possible to shift colours near white towards more bluish coloured white.
- **Green Enhancement**: This feature makes it possible to shift low saturated green colours towards more saturated green colours.
- **Colour Dependent Peaking** (CDP): When using luminance peaking, the viewer has the impression that the colour performance is somewhat lower then in the picture generated without the luminance peaking circuit. This impression is normal because no action was done in the colour channel to compensate for the change in the luminance channel. Locally, at the edge position the contrast has been increased without increase of the saturation at this point. That is why the viewer perceives less colour. To give the viewer the same colour impression as on the original picture, a correction to the colour has to be done at the same place where a change was made in the luminance. This is CDP.
- **Skin Tone Dependent Peaking** (STDP): The horizontal and vertical peaking can be reduced in skin tone areas to avoid that people become too old. Attenuation can be applied to both horizontal and vertical peaking.

9.8 Abbreviation list

2DNR	Spatial (2D) Noise Reduction
3DNR	Temporal (3D) Noise Reduction
AARA	Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeping up the original aspect ratio
ACI	Automatic Channel Installation: algorithm that installs TV sets directly from cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature-box
AM	Amplitude Modulation
ANR	Automatic Noise Reduction: one of the algorithms of Auto TV
AR	Aspect Ratio: 4 by 3 or 16 by 9
Artistic	See OTC 2.5: main processor
ASF	Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars but without throwing away video information
ATV	See Auto TV
AUDIO_C	Audio Centre
AUDIO_L	Audio Left
AUDIO_R	Audio Right
AUDIO_SL	Audio Surround Left
AUDIO-SR	Audio surround right
AUDIO_SW	Audio Subwoofer
Auto TV	A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way
BC-PROT	Protection signal to the uP for a too high Beam Current.
BG	System B and G
BLC-INFO	Black Current Info
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
BOCMA	BiMOS One Chip Mid-end Architecture: integrated video and chroma decoder
CL	Constant Level: audio output to connect with an external amplifier
ComPair	Computer aided rePair
CRT	Cathode Ray Tube or picture tube
CSM	Customer Service Mode
CTI	Colour Transient Improvement: manipulates steepness of chroma transients
CVBS	Composite Video Blanking and Synchronisation
CVBS-TER	CVBS terrestrial
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DC-filament	Filament supply voltage
DFU	Direction For Use: description for the end user
DNR	Digital Noise Reduction: noise reduction feature of the box
DPL	Dolby ProLogic
DSP	Digital Signal Processing
DST	Dealer Service Tool: special remote control designed for dealers to enter e.g. service mode
DVD	Digital Versatile Disc
DYN-FASE-COR	Dynamic phase correction, to correct the phase of the H-drive
Eagle	Feature box IC performing peaking, zooming and sub pixel LTI in both horizontal and vertical direction, CTI and other colour features
EHT	Extra High Tension
EHT-INFO	Extra High Tension information, used for contrast reduction, vertical and horizontal amplitude correction, beam current protection, and flash detection.
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTView)
EW	East West, related to horizontal deflection of the set
EW-DRIVE	The drive signal for the EW-transistor
EXT	External (source), entering the set via SCART or via cinches
FALCONIC	SAA4992H, Feature Box IC performing Digital Natural Motion, 3DNR, and vertical zoom and vertical peaking
FBL	Fast Blanking: DC signal accompanying RGB signals
FBL-PIP	The fast blanking signal for PIP
FBL-TXT	The fast blanking signal for TXT. It has a higher priority than FBL-PIP
FBSCO	Fixed Beam Current Switch Off, a 140 V dip detection to activate the black switch off circuit
FBX	Feature Box: part of small signal / separate module which contains 100 Hz processing, extra featuring and AutoTV algorithms (FBX6= based on PICNIC, FBX7= based on PICNIC and Eagle)
FDS	Full Dual Screen
FILAMENT	Filament of CRT
FLASH	Flash memory
FM	Field Memory or Frequency Modulation
G-TXT	Green teletext
GND-DRIVE	A separate ground for the line drive towards the line driver
HA50	Horizontal Acquisition 1fh: horizontal sync pulse coming out of the HIP
HD100	Horizontal Drive 2fh: horizontal sync pulse coming out of the feature-box
HD at HOME	A signal from the OTC, to switch the HOP to the Pixel Plus standard (75 Hz frame)
HFB	Horizontal Flyback Pulse: horizontal sync pulse from large signal deflection
HIP	High-end video Input Processor (TDA9320): video and chroma decoder of EM5E
HOP	High-end video Output Processor (TDA9330): video, sync, and geometry controller of EM5E
HP	Headphone
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in 'pairs', causing line flicker
Last Status	The settings last chosen by the customer, read, and stored in RAM or in the NVM. They are called at start-up of the set to configure it according the customers wishes
LDP	Line Deflection Protection signal, derived from the EW-current and voltage
LED	Light Emitting Diode

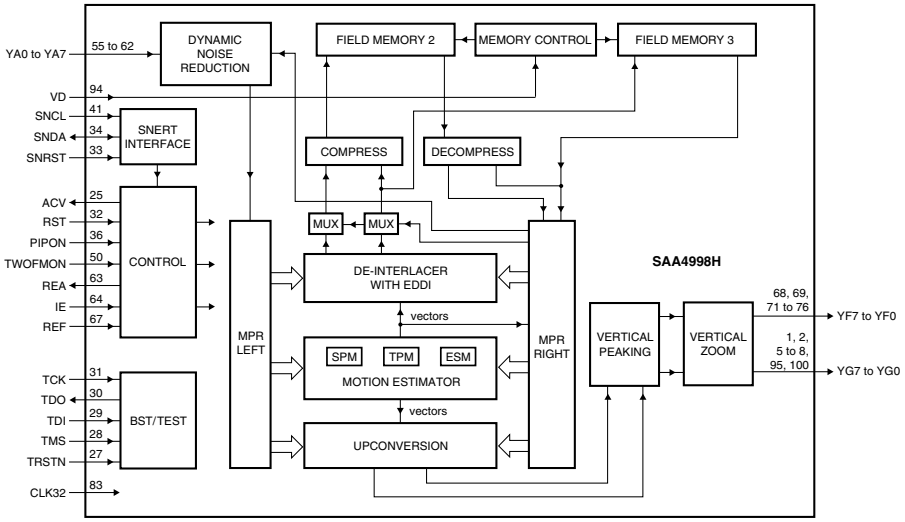
LINE DRIVE	Line drive signal (for the Line transistor)
LNA	Low Noise Adapter
LORE	LOcal REgression based noise reduction
LSP	Large signal panel
MSP	Multi-standard Sound Processor: ITT sound decoder of EM5E
MUTE	Mute-Line
NC	Not Connected
NVM	Non Volatile Memory: IC containing TV related data e.g. alignments
O/C	Open Circuit
ON/OFF LED	On/Off control signal for the LED
OSD	On Screen Display
OTC	On screen display Teletext and Control; also named Artistic (SAA5800)
P50	Project 50 communication: protocol between TV and peripherals
PCB	Printed Circuit Board
PICNIC	Peripheral Integrated Combined Network IC (SAA4978): main IC for 100 Hz featuring and feature processing
PIP	Picture In Picture
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PTP	Picture Tube Panel
RAM	Random Access Memory
R-TXT	Red teletext
RC	Remote Control
RC5 / RC6	Signal protocol from the remote control receiver
RESET	Reset signal
RGB-PIP	RGB-input for PIP
RGB-TXT	RGB-input for Teletext and OSD
RGB-VC	RGB-input to the Picture Tube Panel
ROM	Read Only Memory
SAM	Service Alignment Mode
SC	Sandcastle: two-level pulse derived from sync signals
S/C	Short Circuit
SCAVEM	Scan Velocity Modulation
SCL-F	Clock signal on fast I2C bus
SD	Standard Definition
SDA-F	Data signal on fast I2C bus
SIF	Sound Intermediate Frequency
SIMM	80-fold connector between LSP and SSB
SNERT	Synchronous No parity Eight bit Reception and Transmit
SSB	Small Signal Board
STBY	Standby
SW	Subwoofer
SWAN	Spatial Weighted Averaging Noise reduction
TXT	Teletext
TXT-DS	Teletext Dual Screen
TXT-KILL	To kill the TXT picture to insert a PIP. It has a higher priority than FBL-TXT.
uP	Microprocessor
U100	U from Feature Box
V100	V from Feature Box
VA50	Vertical Acquisition 1Fh
VBAT	Main supply for deflection (mostly 141 V)
VD100	Vertical Drive 2fh: vertical sync pulse from deflection
VDPOS	One of the symmetrical drive signals for the DC frame output stage.
VDNEG	One of the symmetrical drive signals for the DC frame output stage.
VDS	Virtual Dolby Surround
VFB	Vertical Flyback Pulse: vertical sync pulse coming from the Feature Box
VL	Variable Level out: processed audio output towards external amplifier
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
X-RAY-PROT	A protection signal for too high X-ray radiation
XTAL	Quartz crystal
Y100	Y from Feature Box
Y-OUT	Luminance-signal to HOP IC
YUV-Feat	The YUV input for the main picture, coming from the Feature box or the HIP

9.9 IC Data Sheets

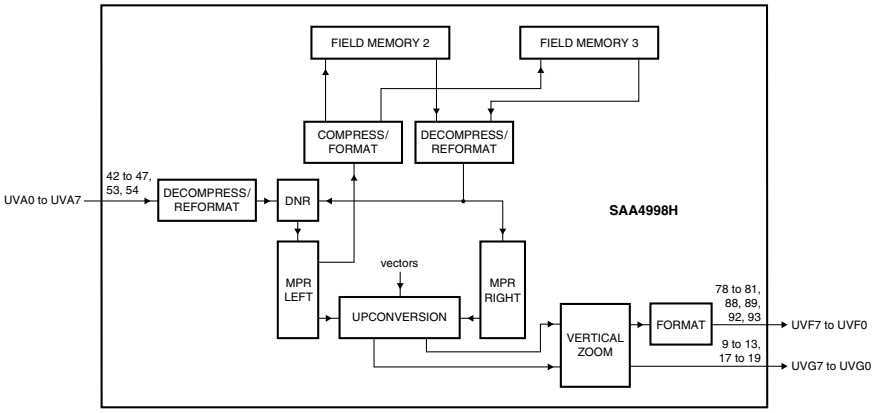
In this paragraph, the internal block diagrams and pinning are given of ICs that are drawn as a 'black box' in the electrical diagrams (with the exception of 'memory' and 'logic' ICs).

9.9.1 Diagram B3B, SAA4998 (IC7760)

Block diagram of the luminance part in full FALCONIC mode.



Block diagram of the chrominance part in full FALCONIC mode.



Pin configuration

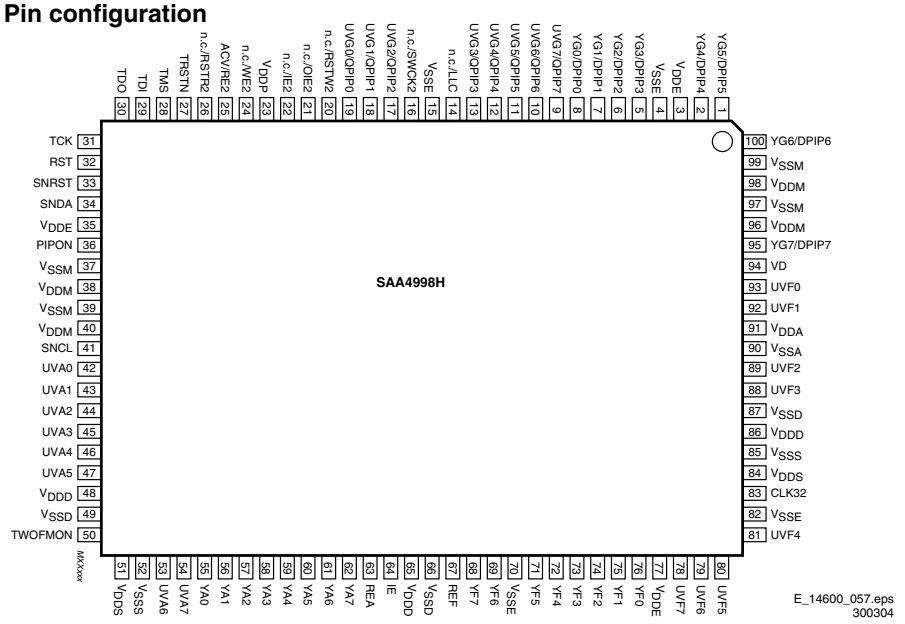
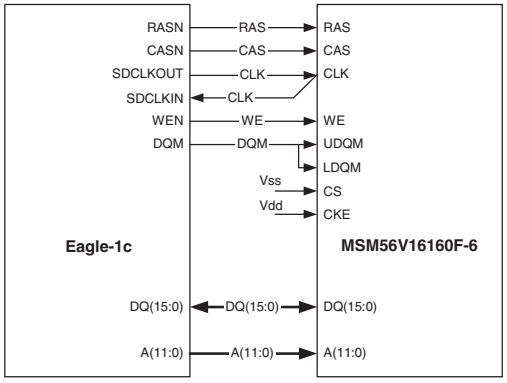


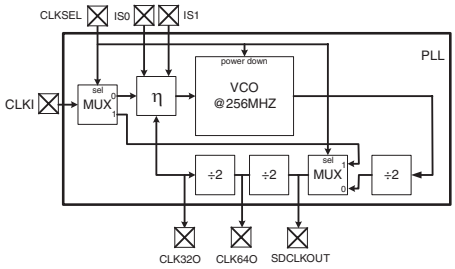
Figure 9-2 Internal Block Diagram and Pin Configuration.

9.9.2 Diagram B3C, T6TU5EF (IC7720)

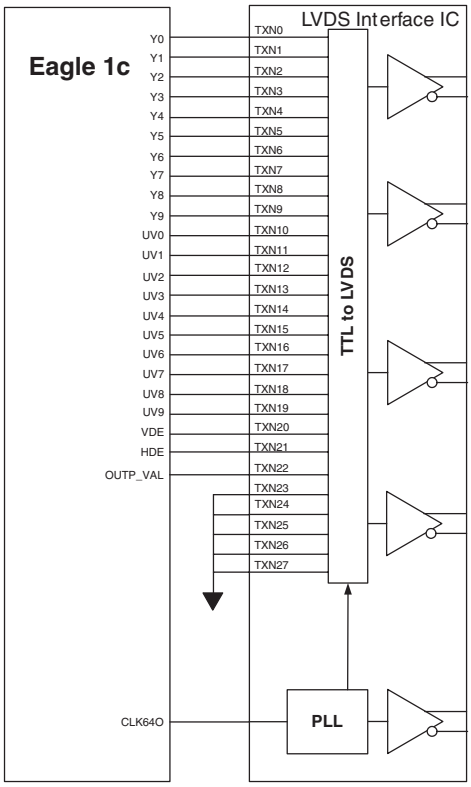
Interface between Eagle and External SDRAM

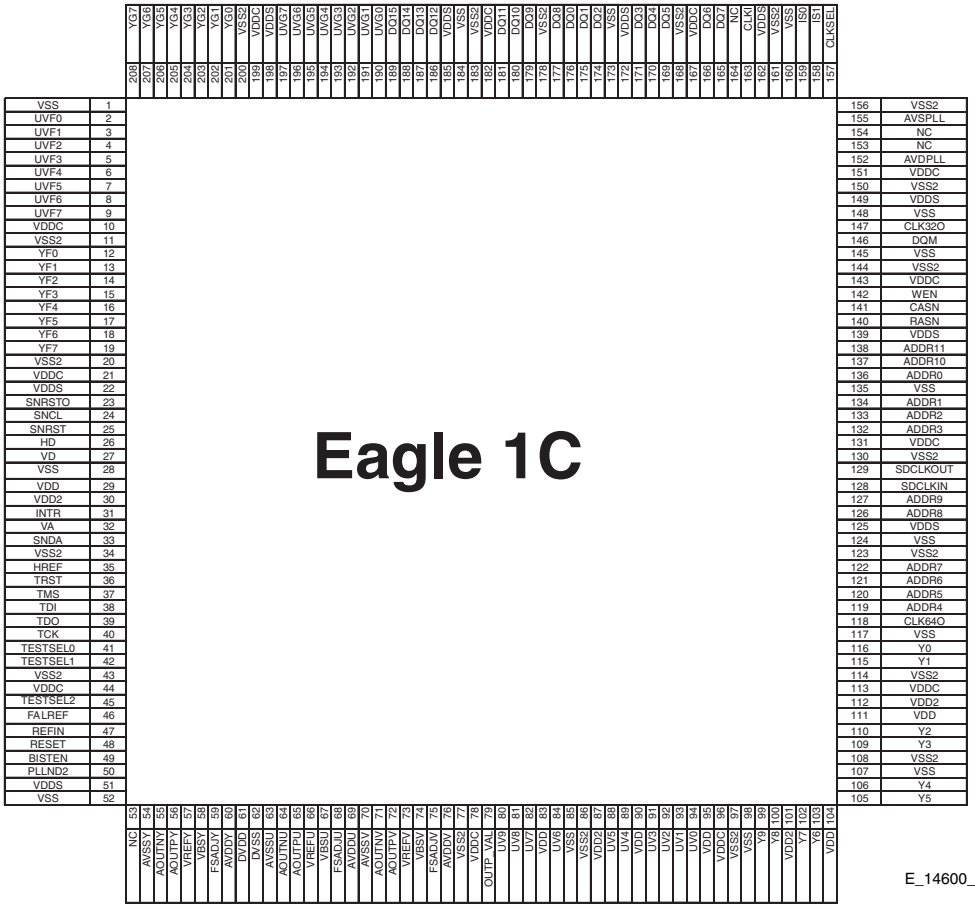


Internal Clock generation



EAGLE IC digital output interface to LVDS device





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131004

Figure 9-3 Internal Block Diagrams

9.9.3 Diagram B3D, T6TU5XB (IC7752)

Figure 1 Package outline (top view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
A	WEB/ DAVB	UVA0 /Di0	UVA2 /Di2	UVA4 /Di4	UVA6 /Di6	UVA8 /Di8	SEL656	TST1	YA2	YA4	YA6	YA8	VA	HREF	SDA	A
B	YB8	VSS	UVA1 /Di1	UVA3 /Di3	UVA5 /Di5	UVA7 /Di7	YA0 /Di9	BISTEN	YA1	YA3	YA5	YA7	WEA/ DAVA	VSS	SCL	B
C	YB7	YB6	VSS	VDDS	VSS	VSS	VDDC	VDDC	VSS	VSS	VDDC	VDDS	VSS	SNDA	SNRST	C
D	YB5	YB4	VDDC	N.C.									VSS	SNCL	TCK	D
E	YB3	YB2	VSS										VDDC	TMS	TDO	E
F	TST2	YB1	VSS										VSS	TRST	TDI	F
G	CLKASB	YB0 /Do9	VDDS										VDDS	A0ICC	RESET	G
H	CLKASA	UVB8/ Do8	TST3										VDDC	CLK EXT	CLKSEL	H
J	UVB7 /Do7	UVB6/ Do6	VSS										VSS	CLK	WEN	J
K	UVB5 /Do5	UVB4/ Do4	VDDC										VSS	CASN	RASN	K
L	UVB3 /Do3	UVB2 /Do2	VSS										VDDS	DQM	DQ16	L
M	UVB1 /Do1	UVB0 /Do0	VDDS										VSS	DQ14	DQ15	M
N	AVD	N.C.	VDDS	VSS	VSS	VDDC	VSS	VDDS	VDDC	VSS	VDDS	VSS	VSS	VDDS	DQ13	N
P	AVS	VSS	A7	A9	A2	A0	A11	DQ7	DQ6	DQ4	DQ3	DQ1	VDDS	VSS	DQ12	P
R	A4	A5	A6	A8	A3	A1	A10	DQ8	VSS	DQ5	VSS	DQ2	DQ9	DQ10	DQ11	R
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

COLUMBUS TOP-VIEW

PPA Version 2.7

E_14600_059.eps 200804

Figure 9-4 Pin Configuration

10. Spare Parts List

Set Level

(1) = 29PT9221/93R
(2) = 29PT9421/56R
(3) = 29PT9421/69R
(4) = 32PW9529/79R
(5) = 34PT9421/56R
(6) = 34PT9421/69R
(7) = 34PT9421/93R

Various

0111	3104 304 24851	Top control ESD foil
0290	3111 254 23481	Coil & clamp
1014	3104 328 19771	Top Control assy US
1022	3139 188 82091	DW-Panel AP
1099▲	9301 924 90314	W76ERF062X044 (4)
1099▲	9301 978 20542	A80ERF042X45H (5, 7)
1099▲	9301 978 30542	A80ERF042X46H (6)
1099▲	9322 160 14682	A68QCP891X500 (2)
1099▲	9322 160 15682	A68QCP891X501 (3)
1099▲	9322 213 83682	A68QCP691X500 (1)
1114	3104 328 17301	Top Control assy (4)
1114	3104 328 35551	Top Control assy (5, 6, 7)
1114	3104 328 35561	Top Control assy (1, 2, 3)
1116	3104 328 26751	Side I/O assy
1126	3104 328 30063	Jack Panel
1154	3104 328 29291	CRT panel 32" LGPD
1154	3104 328 30921	CRT panel 34" LGPD
1154	3104 328 36241	CRT panel 29" SAMS
1160	3104 328 35571	Mains assy
1180	3104 328 12141	DC-shift assy
8190▲	2422 070 98132	Mains cord (4)
8190▲	4622 006 06061	Mains cord (1, 7)
8190▲	4822 321 11493	Mains cord (2, 5)
8190▲	4822 321 11499	Mains cord (3, 6)

⎓

5203	2422 549 44579	Degaus. coil 29" (1, 2)
5203	3104 308 20361	Degaus. coil 34" (5, 6, 7)
5203	3104 308 20401	Degaus. coil 32" (4)
5203	3139 128 23781	Degaus. coil 29" (3)
5205	3104 308 20961	Canceller coil
5210	3104 130 01981	Subwoofer FL11

Large Signal Panel [A]

Various

0320	4822 255 41371	Transistor clamp
1146	4822 267 10734	Connector 5p
1200	2422 542 00013	TEDE9-201B
1200	2422 542 90075	TEDE9X700A
1200	2422 542 90106	TEDE9-200A
1205	2422 025 17242	Connector 80p f SIMM
1417	4822 265 20723	Connector 2p
1424	2422 025 11244	Connector 7p m
1491	4822 267 10973	Connector 1p
1492	4822 267 10735	Connector 3p
1498	2422 025 04849	Connector 2p m
1499	2422 025 04849	Connector 2p m
1501▲	4822 070 35002	Fuse 5A
1502	4822 267 10774	Connector 2p male Rd
1503▲	4822 070 12502	Fuse 2.5A
1503▲	4822 070 14002	Fuse 4A
1505	2422 025 16374	Connector 2p m
1511	4822 265 11253	Fuse holder
1512	4822 265 11253	Fuse holder
1520	3104 301 24181	Spring for Bracket
1521	3104 301 24181	Spring for Bracket
1522	4822 492 70789	Fix transistor
1550▲	2422 132 07411	Relay 1p 5V 5A
1590	4822 252 60151	Surge protect
1591	4822 252 60151	Surge protect
1601▲	2422 086 10919	Fuse 65V 125mA
1620	4822 267 10735	Connector 3p
1625	2422 025 16382	Connector 3p m
1693	4822 267 10676	RT-01T-1.0B (1P)
1735	4822 267 10565	Connector 4p
1737	2422 025 16382	Connector 3p m
1738	2422 025 16383	Connector 3p m
1900	2422 026 05272	Socket CINCH 12p f
1901	2422 026 04741	Socket SVHS 4p f
1902	4822 267 11033	Socket CINCH 3p f
1933	4822 267 10565	Connector 4p
1935	4822 267 10734	Connector 5p
1936	2422 025 12485	Connector 11p m
1937	4822 267 10557	Connector 10p
1940	2422 025 12485	Connector 11p m
1943	4822 267 10748	Connector 3p
1945	4822 267 10735	Connector 3p
1946	4822 265 41391	Connector 9p
1948	2422 025 10768	Connector 3p m
1951	2422 025 15848	Connector 5p m
1953	4822 267 10735	Connector 3p
1955	4822 267 10735	Connector 3p
8000▲	3104 311 03272	Cable 640mm EHT
8000▲	3104 311 03721	Cable 820 mm EHT
8192	3104 301 08351	Cable phono/140/phono
8193▲	4822 320 20216	Cable focus 364 mm
8194▲	4822 320 20189	Cable 440mm HT-focus
8417▲	3104 311 04561	Cable 2P3/400/2P3
8424▲	3104 311 02991	Cable 7p/560/7p Wh
8492▲	3104 311 05291	Cable 3p/400/3p
8498	3104 311 04531	Cable 2P/400/2P
8625▲	3104 311 03101	Cable 3p/560/3p Bk
8693▲	3104 311 03791	Wire 1p/480/4p
8737▲	3104 311 04682	Cable 2p3/680/2xPosi
8933	3104 311 05091	Cable tree 09572 ferrite
8937	3104 311 04631	Cable 10p/400/10p
8940	3104 311 04651	Cable 11p/140/11p
8948▲	3104 311 05021	Cable 3p/220/3p
8951	3104 311 00771	Cable 5p/400/5p Bk
8951	3104 311 01241	Cable 5P 400mm
8955	3104 311 01211	Cable 3p/140/3p Wh

⊣⊢

2100	2020 554 90148	470pF 20% 250V
2100	2252 811 95021	1nF 10% 250V
2101	5322 122 32818	2.2nF 10% 100V
2102	4822 124 40207	100µF 20% 25V
2102	4822 124 40248	10µF 20% 63V
2103	2020 552 94427	100pF 5% 50V
2104	4822 123 14025	2200µF 20% 16V
2105	2020 552 94427	100pF 5% 50V
2107	4822 121 43855	3.3nF 5% 400V
2108	4822 121 70162	10nF 5% 400V
2109	4822 126 14472	1µF 10% 10V 0805
2110	4822 126 14472	1µF 10% 10V 0805
2111	4822 121 43526	47nF 5% 250V
2112	5322 126 11583	10nF 10% 50V 0603
2114	2222 338 22104	100nF 20% 275V
2114	4822 121 10711	100nF 20% 275V
2115	4822 124 40764	22µF 100V
2116	4822 126 13682	100pF 5% 1kV
2118	4822 124 80061	1000µF 20% 25V
2119	4822 123 14025	2200µF 20% 16V
2120	4822 126 11524	1.5nF 10% 1kV
2121	4822 121 41856	22nF 5% 250V
2122	4822 121 41856	22nF 5% 250V
2126	4822 123 14025	2200µF 20% 16V
2130	5322 126 11583	10nF 10% 50V 0603
2131	4822 126 13881	470pF 5% 50V
2140	4822 124 40248	10µF 20% 63V
2141	4822 124 40248	10µF 20% 63V
2144	4822 126 14472	1µF 10% 10V 0805
2145	4822 126 13881	470pF 5% 50V
2147	3198 017 31530	15nF 20% 50V 0603
2148	4822 126 13599	3.3nF 10% 500V
2149	4822 126 14472	1µF 10% 10V 0805
2150	5322 126 11583	10nF 10% 50V 0603
2151	4822 124 40207	100µF 20% 25V
2152	4822 121 70162	10nF 5% 400V
2153	5322 126 11582	6.8nF 10% 63V
2154	3198 017 33330	33nF 20% 16V 0603
2154	4822 126 14549	33nF 16V 0603
2155	4822 126 14585	100nF 10% 0805 50V
2156	5322 126 11583	10nF 10% 50V 0603
2157	4822 121 42687	3.3nF 10% 63V
2161	2020 558 90556	680pF 10% 1kV
2161	4822 126 14152	680pF 10% 1kV
2162	2238 586 59812	100nF 20% 50V 0603
2164	2238 586 59812	100nF 20% 50V 0603
2200	4822 124 40248	10µF 20% 63V
2201	4822 126 13879	220nF +80-20% 16V
2202	4822 126 13473	220nF +80%/-20% 50V
2203	4822 124 40433	47µF 20% 25V
2400	2020 021 91445	47µF 20% 200V
2400	4822 124 11575	47µF 20% 160V
2401	4822 121 42077	6.8nF 10% 400V
2402	2020 012 93771	33µF 20% 250V
2402	4822 124 12373	47µF 20% 250V
2403	2238 916 15641	22nF 10% 25V 0603
2404	2238 916 15641	22nF 10% 25V 0603
2412	3198 024 44730	47nF 50V 0603
2413	4822 124 12255	10µF 20% 50V
2414	3198 024 44730	47nF 50V 0603
2415	4822 126 13883	220pF 5% 50V
2417	4822 126 14076	220nF +80/-20% 25V
2419	4822 126 14237	470pF 10% 2kV
2420	4822 121 70581	1.5nF 5% 2kV
2420	4822 121 70594	1nF 5% 2kV
2421	2038 301 00312	1.2µF 5% 250V
2421	4822 121 42634	560nF 5% 250V
2425	4822 121 10526	9.1nF 5% 2kV
2426	4822 121 10653	22nF 5% 630V
2430	4822 126 10206	2.2nF 10% 500V
2431	4822 126 10206	2.2nF 10% 500V
2433	2022 333 00087	510nF 5% 250V
2433	2022 333 00163	360nF 5% 250V
2440	2022 552 05679	1µF 10% 16V 0805
2441	5322 122 32654	22nF 10% 63V 0805
2442	5322 122 31866	6.8nF 10% 63V
2443	9965 000 09661	470pF 50V 10%
2445	5322 122 32654	22nF 10% 63V 0805
2448	5322 122 32268	470pF 5% 50V 0805 NP0
2450	4822 121 40434	330nF 10% 100V
2451	2020 012 93757	1000µF 20% 10V
2454	3198 017 31530	15nF 20% 50V 0603
2455	5322 126 11578	1nF 10% 50V 0603
2457	2020 552 96699	15nF 5% 25V
2457	2020 552 96804	15nF 10% 50V 0805
2458	4822 126 14241	330pF 0603 50V
2460	4822 124 81144	1000µF 16V
2461	4822 122 31169	1.5nF 10% 500V
2462	4822 124 80061	1000µF 20% 25V
2463	4822 122 31177	470pF 10% 500V
2464	4822 124 80061	1000µF 20% 25V
2465	4822 122 31177	470pF 10% 500V
2466	2238 586 59812	100nF 20% 50V 0603
2468	4822 122 31177	470pF 10% 500V
2469	4822 126 13599	3.3nF 10% 500V
2480	5322 126 11582	6.8nF 10% 63V
2482	3198 017 34730	47nF 16V 0603
2490	2020 021 91773	100µF 20% 10V
2490	9965 000 14169	100µF 10V 20%
2491	4822 124 81151	22µF 50V
2492	9965 000 14169	100µF 10V 20%
2493	5322 126 11579	3.3nF 10% 63V
2494	2020 552 96326	220nF 10% 16V
2494	2238 780 15654	220nF 10% 16V 0805
2495	2238 780 15654	220nF 10% 16V 0805
2496	5322 126 11582	6.8nF 10% 63V
2496	5322 126 11583	10nF 10% 50V 0603
2497	4822 126 12105	33nF 5% 50V 0805
2498	2022 552 05679	1µF 10% 16V 0805
2499	5322 126 11579	3.3nF 10% 63V
2501▲	4822 126 13449	1nF 10% 2kV
2501	4822 126 14053	1nF 10% 2kV
2503	4822 121 51472	39nF 5% 250V
2503	5322 121 42489	33nF 5% 250V
2504	2238 916 15641	22nF 10% 25V 0603
2505	2252 811 95018	2.2nF 20% 250V
2505	4822 126 13841	1nF 20% 250V
2506	4822 121 43526	47nF 5% 250V
2507▲	2222 338 22474	470nF 20% 275V
2507	4822 126 13589	470nF 275V
2508	2222 338 23223	22nF 20% 275V
2508	4822 124 11913	22nF 20% 275V
2509	2222 338 23223	22nF 20% 275V
2509	4822 124 11913	22nF 20% 275V
2510	4822 126 12263	220pF 10% 2kV
2511	4822 124 12417	2200µF 20% 25V
2512	4822 124 12417	2200µF 20% 25V
2513	4822 126 13881	470pF 5% 50V
2514	4822 126 14238	2.2nF 50V 0603
2515	4822 124 80096	47µF 200V
2516	2020 024 90727	470?F 20% 450V
2516	4822 124 12415	220µF 20% 400V
2516	4822 124 12443	220UF 20% 450V
2517	4822 121 70162	10nF 5% 400V
2518▲	4822 122 31211	100pF 10% 500V
2518	4822 126 13597	330pF 10% 500V
2519	4822 126 10206	2.2nF 10% 500V
2520	2222 338 22104	100nF 20% 275V
2520	4822 121 10711	100nF 20% 275V
2522	4822 126 10206	2.2nF 10% 500V
2524	5322 126 11583	10nF 10% 50V 0603
2525	4822 126 14247	1.5nF 50V 0603
2526	2020 558 90571	2.2nF 10% 1kV
2527	4822 126 14237	470pF 10% 2kV
2528	4822 126 14472	1µF 10% 10V 0805

2530	4822 126 14472	1µF 10% 10V 0805
2531	4822 122 31169	1.5nF 10% 500V
2531	4822 122 31175	1nF 10% 500V
2532	4822 126 14472	1µF 10% 10V 0805
2533	2020 557 90732	4.7nF 10% 250V
2534	2222 580 15649	100nF 10% 50V 0805
2535	4822 126 13193	4.7nF 10% 63V
2537	2222 338 23223	22nF 20% 275V
2537	4822 124 11913	22nF 20% 275V
2538	4822 122 33177	10nF 20% 50V
2539	3198 028 41090	10µF 20% 35V
2540	4822 124 12255	10µF 20% 50V
2540	4822 124 22651	1µF 20% 50V
2541	4822 122 31211	100pF 10% 500V
2541	4822 126 13597	330pF 10% 500V
2542	4822 124 12284	470µF 20% 25V
2543	4822 124 12284	470µF 20% 25V
2544	4822 126 14238	2.2nF 50V 0603
2544	5322 126 11578	1nF 10% 50V 0603
2601	2238 586 59812	100nF 20% 50V 0603
2603	4822 126 13883	220pF 5% 50V
2604	4822 126 13473	220nF +80%/-20% 50V
2605	4822 126 13883	220pF 5% 50V
2620	4822 126 13473	220nF +80%/-20% 50V
2621	2238 586 59812	100nF 20% 50V 0603
2622	4822 124 40255	100µF 20% 63V
2623	4822 126 14238	2.2nF 50V 0603
2624	4822 121 51252	470nF 5% 63V
2624	4822 121 51319	1µF 10% 63V
2625	4822 121 51252	470nF 5% 63V
2625	4822 121 51319	1µF 10% 63V
2627	5322 124 40641	10µF 20% 100V
2628	4822 124 40255	100µF 20% 63V
2630	4822 126 14491	2.2µF 10V 0805
2631	4822 126 14491	2.2µF 10V 0805
2633	5322 126 11579	3.3nF 10% 63V
2633	5322 126 11582	6.8nF 10% 63V
2635	2238 586 59812	100nF 20% 50V 0603
2642	4822 124 40255	100µF 20% 63V
2653	2238 586 15628	2.7nF 10% 50V 0603
2653	4822 126 13881	470pF 5% 50V
2656	2238 916 15641	22nF 10% 25V 0603
2657	2238 916 15641	22nF 10% 25V 0603
2659	2238 916 15641	22nF 10% 25V 0603
2660	5322 126 11578	1nF 10% 50V 0603
2661	5322 126 11582	6.8nF 10% 63V
2662	2238 586 15628	2.7nF 10% 50V 0603
2702	3198 016 31020	1nF 25V 0603
2704	3198 016 31020	1nF 25V 0603
2705	4822 126 13482	470nF +80%/-20% 16V
2706	4822 126 14585	100nF 10% 0805 50V
2707	4822 126 14076	220nF +80/-20% 25V
2708	4822 126 14076	220nF +80/-20% 25V
2709	4822 126 13881	470pF 5% 50V
2710	4822 126 13881	470pF 5% 50V
2711	3198 016 31020	1nF 25V 0603
2712	2020 552 96683	220nF 10% 50V
2713	4822 126 14076	220nF +80/-20% 25V
2714	3198 017 33330	33nF 20% 16V 0603
2714	4822 126 14549	33nF 16V 0603
2715	3198 016 31020	1nF 25V 0603
2716	4822 126 14241	330pF 0603 50V
2717	5322 121 42498	680nF 5% 63V
2718	2222 867 15339	33pF 5% 50V 0603
2719	3198 016 31020	1nF 25V 0603
2720	4822 126 14076	220nF +80/-20% 25V
2721	4822 126 13881	470pF 5% 50V
2722	4822 126 13881	470pF 5% 50V
2723	3198 016 31020	1nF 25V 0603
2724	2020 552 96683	220nF 10% 50V
2725	3198 016 31020	1nF 25V 0603
2726	3198 017 33330	33nF 20% 16V 0603
2726	4822 126 14549	33nF 16V 0603
2727	3198 016 31020	1nF 25V 0603
2728	4822 126 14241	330pF 0603 50V
2729	5322 121 42498	680nF 5% 63V
2730	4822 126 14505	4.7nF 10% 2KV
2740	4822 121 51252	470nF 5% 63V
2741	2222 867 15339	33pF 5% 50V 0603
2742	4822 126 14241	330pF 0603 50V
2743	4822 126 12105	33nF 5% 50V 0805
2744	4822 126 12105	33nF 5% 50V 0805
2745	4822 126 14241	330pF 0603 50V
2746	3198 016 31020	1nF 25V 0603
2747	4822 126 13881	470pF 5% 50V
2748	2020 552 96683	220nF 10% 50V
2749	2020 552 95447	2.2µF 20% 16V
2750	2238 586 59812	100nF 20% 50V 0603
2751	4822 126 14585	100nF 10% 0805 50V
2753	4822 126 14076	220nF +80/-20% 25V
2754	2020 552 95447	2.2µF 20% 16V
2755	3198 016 31020	1nF 25V 0603
2756	4822 126 13881	470pF 5% 50V
2757	2020 552 96683	220nF 10% 50V
2758	5322 121 42498	680nF 5% 63V
2759	5322 126 10511	1nF 5% 50V
2760	5322 122 32268	470pF 5% 50V 0805 NP0
2761	4822 126 13881	470pF 5% 50V
2762	4822 126 14076	220nF +80/-20% 25V
2763	4822 126 14076	220nF +80/-20% 25V
2777	2020 552 96684	470nF 10% 25V 0805
2778	4822 124 41751	47µF 20% 50V
2779	2020 552 96684	470nF 10% 25V 0805
2780	2020 552 96684	470nF 10% 25V 0805
2781	2020 552 96684	470nF 10% 25V 0805
2782	2020 552 96684	470nF 10% 25V 0805
2783	2020 552 96684	470nF 10% 25V 0805
2784	2020 552 96684	470nF 10% 25V 0805
2785	2020 552 96684	470nF 10% 25V 0805
2786	2238 916 15641	22nF 10% 25V 0603
2787	2238 916 15641	22nF 10% 25V 0603
2791	2020 552 96684	470nF 10% 25V 0805
2792	2020 552 96684	470nF 10% 25V 0805
2914	4822 124 40248	10µF 20% 63V
2915	4822 124 12255	10µF 20% 50V
2930	2020 552 93683	1.2nF 10% 50V 0603
2931	2020 552 93683	1.2nF 10% 50V 0603
2940	9965 000 14169	100µF 10V 20%
2941	4822 126 14585	100nF 10% 0805 50V
2942	4822 126 14585	100nF 10% 0805 50V
2943	4822 126 14585	100nF 10% 0805 50V
2945	4822 126 14491	2.2µF 10V 0805
2946	4822 126 14491	2.2µF 10V 0805
2947	2020 012 93843	4.7µF 20% 50V
2947	2020 021 90141	4.7µF 20% 50V
2948	9965 000 14169	100µF 10V 20%
2949	9965 000 14169	100µF 10V 20%
2950	5322 126 11583	10nF 10% 50V 0603
2951	5322 126 11583	10nF 10% 50V 0603
2985	4822 126 14241	330pF 0603 50V
2986	4822 126 14241	330pF 0603 50V
2987	5322 126 11579	3.3nF 10% 63V
2988	4822 126 14585	100nF 10% 0805 50V
2989	2020 012 93757	1000µF 20% 10V
2991	4822 126 14241	330pF 0603 50V
2992	4822 126 14241	330pF 0603 50V
2993	5322 122 32531	100pF 5% 50V
2994	5322 122 32531	100pF 5% 50V
2995	4822 126 14491	2.2µF 10V 0805
2996	4822 126 14491	2.2µF 10V 0805
2997	4822 126 14491	2.2µF 10V 0805
2998	5322 122 32531	100pF 5% 50V
2999	5322 122 32531	100pF 5% 50V

–WW–

3101	4822 053 20225	2.2MΩ 5% 0.25W
3101	4822 053 20475	4.7MΩ 5% 0.25W
3102	2312 915 11002	1kΩ 1% 0.5W
3102	3198 039 10020	1kΩ 1% 0.5W
3102	4822 050 21002	1kΩ 1% 0.6W
3103	2312 915 11002	1kΩ 1% 0.5W
3103	3198 039 10020	1kΩ 1% 0.5W
3103	4822 050 21002	1kΩ 1% 0.6W
3104	4822 116 52195	47Ω 5% 0.5W
3105	4822 050 11002	1kΩ 1% 0.4W
3106	4822 050 11002	1kΩ 1% 0.4W
3107	4822 050 11002	1kΩ 1% 0.4W
3108	2122 101 02083	1.5Ω 5% 0.5W
3108	4822 116 80176	1Ω 5% 0.5W
3111	4822 053 10152	1.5kΩ 5% 1W
3113	4822 116 52186	22Ω 5% 0.5W
3114	4822 116 83872	220Ω 5% 0.5W
3115	4822 116 52257	22kΩ 5% 0.5W
3115	4822 116 52264	27kΩ 5% 0.5W
3116	4822 116 52257	22kΩ 5% 0.5W
3116	4822 116 52264	27kΩ 5% 0.5W
3117	4822 116 52195	47Ω 5% 0.5W
3118	2122 101 02083	1.5Ω 5% 0.5W
3118	4822 116 80676	1.5Ω 5% 0.5W
3120	4822 051 20109	10Ω 5% 0.1W
3121	4822 051 30109	10Ω 5% 0.062W
3123	4822 116 52176	10Ω 5% 0.5W
3124	4822 116 52199	68Ω 5% 0.5W
3125	4822 116 52182	15Ω 5% 0.5W
3126	4822 050 21003	10kΩ 1% 0.6W
3127	4822 116 52289	5.6kΩ 5% 0.5W
3130	4822 051 30479	47Ω 5% 0.062W
3131	4822 051 20471	470Ω 5% 0.1W
3132	4822 051 20479	47kΩ 5% 0.1W
3133	4822 117 12925	47kΩ 1% 0.063W 0603
3134	4822 051 30102	1kΩ 5% 0.062W
3135	4822 051 30101	100Ω 5% 0.062W
3136	4822 051 30109	10Ω 5% 0.062W
3137	4822 050 24702	4.7kΩ 1% 0.6W
3138	4822 051 20105	1MΩ 5% 0.1W
3138	4822 051 20824	820kΩ 5% 0,1W
3140	4822 117 10833	10kΩ 1% 0.1W
3141	4822 116 52263	2.7kΩ 5% 0.5W
3142	4822 051 30332	3.3Ω 5% 0.062W
3143	4822 051 30101	100Ω 5% 0.062W
3144	4822 053 10221	220Ω 5% 1W
3150	4822 117 11373	100Ω 1% 0805
3151	4822 051 30109	10Ω 5% 0.062W
3152	4822 051 30102	1kΩ 5% 0.062W
3153	4822 051 20472	4.7kΩ 5% 0.1W
3155	4822 051 30101	100Ω 5% 0.062W
3156	5322 117 13017	100Ω 1% 0.063W 0603
3157	4822 051 30103	10kΩ 5% 0.062W
3158	2322 704 64709	47Ω 1% 0.063W 0603
3158	5322 117 13021	47Ω 1% 0.063W 0603
3159	4822 051 30103	10kΩ 5% 0.062W
3160	4822 051 30102	1kΩ 5% 0.062W
3161	4822 052 10101	100Ω 5% 0.33W
3163	4822 053 20106	10MΩ 5% 0.25W
3164	4822 117 13632	100kΩ 1% 0603 0.62W
3165	4822 051 30331	330Ω 5% 0.062W
3168	4822 051 20472	4.7kΩ 5% 0.1W
3169	4822 051 30102	1kΩ 5% 0.062W
3170	4822 117 12925	47kΩ 1% 0.063W 0603
3171	4822 116 52291	56kΩ 5% 0.5W
3171	4822 116 52297	68kΩ 5% 0.5W
3172	4822 116 52291	56kΩ 5% 0.5W
3172	4822 116 52297	68kΩ 5% 0.5W
3180	3198 021 31080	1Ω 5% 0603
3180	4822 117 12917	1Ω 5% 0.062W
3181	3198 021 31080	1Ω 5% 0603
3181	4822 117 12917	1Ω 5% 0.062W
3200	4822 117 11373	100Ω 1% 0805
3201	4822 117 11373	100Ω 1% 0805
3210	4822 051 30102	1kΩ 5% 0.062W
3211	4822 051 30222	2.2kΩ 5% 0.062W
3212	4822 051 30101	100Ω 5% 0.062W
3213	4822 116 52175	100Ω 5% 0.5W
3250	4822 051 20008	Jumper 0805
3261	4822 117 11373	100Ω 1% 0805
3262	4822 117 11373	100Ω 1% 0805
3400	4822 052 11108	1Ω 5% 0.5W
3401	2120 105 93473	27Ω 5% 3W
3402	4822 053 10121	120Ω 5% 1W
3403	4822 116 52175	100Ω 5% 0.5W
3404	4822 051 30471	47Ω 5% 0.062W
3406	4822 117 11373	100Ω 1% 0805
3407	4822 051 30103	10kΩ 5% 0.062W
3409	4822 050 11002	1kΩ 1% 0.4W
3410	4822 051 20479	47kΩ 5% 0.1W
3411	2122 101 02111	39Ω 5% 0.5W
3411	4822 116 52193	39Ω 5% 0.5W
3412	4822 117 11817	1.2kΩ 1% 0.0625W
3414	4822 051 30331	330Ω 5% 0.062W
3415	3198 012 31590	15Ω 5% 3W
3417	4822 116 52176	10Ω 5% 0.5W
3418	4822 050 25603	56kΩ 1% 0.6W
3419	4822 051 30474	470kΩ 5% 0.062W
3420	4822 051 30332	3.3Ω 5% 0.062W
3421	4822 051 30474	470kΩ 5% 0.062W
3422	4822 051 30332	3.3Ω 5% 0.062W
3423	4822 053 10688	6.8Ω 5% 1W
3425	4822 116 52176	10Ω 5% 0.5W
3426	4822 116 52176	10Ω 5% 0.5W
3427	4822 051 30563	56kΩ 5% 0.062W
3428	4822 051 30684	680kΩ 5% 0.062W
3430	4822 051 30334	330kΩ 5% 0.062W
3431	2306 207 03151	150Ω 5% 0.5W
3432	2322 702 60564	560kΩ 5% 0603
3432	4822 051 30474	470kΩ 5% 0.062W
3437	4822 051 20109	10Ω 5% 0.1W
3440	4822 051 30102	1kΩ 5% 0.062W
3441	4822 051 30223	22kΩ 5% 0.062W
3442	4822 051 30474	470kΩ 5% 0.062W
3443	4822 051 30684	680kΩ 5% 0.062W
3444	4822 051 20108	1Ω 5% 0.1W
3447	4822 117 11373	100Ω 1% 0805
3449	4822 052 10101	100Ω 5% 0.33W
3450	4822 050 21003	10kΩ 1% 0.6W
3451	4822 050 21003	10kΩ 1% 0.6W
3454	4822 051 20108	1Ω 5% 0.1W
3454	4822 051 20223	22kΩ 5% 0.1W
3455	4822 117 12902	8.2kΩ 1% 0.063W 0603
3455	5322 117 13056	8.2kΩ 1% 0.063W 0603
3456	3198 021 31820	1.8kΩ 5% 0.062W 0603
3456	4822 117 12903	1.8kΩ 1% 0.063W 0603
3457	4822 051 30152	1.5Ω 5% 0.062W
3458	4822 051 30471	47Ω 5% 0.062W
3459	4822 051 30272	2.7kΩ 5% 0.062W
3460	4822 052 10108	1Ω 5% 0.33W
3461	4822 052 10108	1Ω 5% 0.33W
3462	4822 052 11108	1Ω 5% 0.5W
3463	4822 052 11108	1Ω 5% 0.5W
3464	4822 052 11108	1Ω 5% 0.5W
3465	4822 052 11108	1Ω 5% 0.5W

3466	4822 051 30472	4.7Ω 5% 0.062W
3467	4822 117 13632	100kΩ 1% 0603 0.62W
3472	4822 051 30393	39kΩ 5% 0.062W
3474	4822 051 30563	56kΩ 5% 0.062W
3475	4822 051 30472	4.7Ω 5% 0.062W
3476	4822 116 83874	220kΩ 5% 0.5W
3478	4822 116 52175	100Ω 5% 0.5W
3479	4822 052 10478	4.7Ω 5% 0.33W
3480	4822 052 10688	6.8Ω 5% 0.33W
3481	2322 750 61001	100Ω 5% 1206
3482	4822 051 30221	220Ω 5% 0.062W
3483	3198 021 31820	1.8kΩ 5% 0.062W 0603
3483	4822 117 12903	1.8kΩ 1% 0.063W 0603
3485	4822 051 30471	47Ω 5% 0.062W
3486	2120 108 94004	7.5kΩ 1% 0603
3486	2322 704 67502	7.5kΩ 1% 0.5W
3487	4822 117 12902	8.2kΩ 1% 0.063W 0603
3487	5322 117 13056	8.2kΩ 1% 0.063W 0603
3488	4822 050 26804	680kΩ 1% 0.6W
3489	4822 051 30103	10kΩ 5% 0.062W
3490	4822 051 30332	3.3Ω 5% 0.062W
3491	4822 117 12925	47kΩ 1% 0.063W 0603
3492	4822 116 52175	100Ω 5% 0.5W
3493	4822 050 21504	150kΩ 1% 0.6W
3495	4822 050 21503	15kΩ 1% 0.6W
3496	4822 051 30272	2.7kΩ 5% 0.062W
3497	4822 051 30333	33kΩ 5% 0.062W
3500	2322 253 41567	0.56Ω 5% 10W
3501	2120 103 90057	100Ω 20% 0.5W
3501	2120 103 90073	100Ω 20% RC1/2
3504	4822 051 30222	2.2kΩ 5% 0.062W
3505	4822 116 52245	150kΩ 5% 0.5W
3505	4822 116 52257	22kΩ 5% 0.5W
3506	4822 051 30562	5.6kΩ 5% 0.063W 0603
3507	4822 050 21604	160kΩ 1% 0.6W
3508	4822 116 52182	15Ω 5% 0.5W
3509▲	2122 550 00158	VDR 1mA 612V
3510	5322 117 12487	1kΩ 1% 0.125W
3511	4822 053 11222	2.2kΩ 5% 2W
3512	4822 051 30334	330kΩ 5% 0.062W
3512	4822 117 12891	220kΩ 1%
3513	2322 193 53474	470kΩ 5% 0,5W
3513	4822 116 52272	330k 5% 0.5W
3514	2322 193 53397	0.39Ω 5% 0.6W
3514	4822 117 11744	0.22Ω 5% 1W
3515	2322 193 53397	0.39Ω 5% 0.6W
3515	4822 117 11744	0.22Ω 5% 1W
3517	4822 117 10834	47kΩ 1% 0.1W
3518	4822 053 20334	330kΩ 5% 0.25W
3518	4822 116 52234	100kΩ 5% 0.5W
3519	4822 051 30102	1kΩ 5% 0.062W
3519	4822 117 11817	1.2kΩ 1% 0.0625W
3520	3104 307 09971	2x 15kΩ assy PR02
3520	4822 053 11223	22kΩ 5% 2W
3520	4822 053 11333	33kΩ 5% 2W
3521	4822 053 21475	4.7MΩ 5% 0.5W
3522	4822 117 11507	6.8kΩ 1% 0.1W
3523	4822 051 20105	1MΩ 5% 0.1W
3524	4822 051 30333	33kΩ 5% 0.062W
3525	4822 051 30479	47Ω 5% 0.062W
3527	4822 117 11951	2kΩ 1% 0.1W
3528	4822 051 30103	10kΩ 5% 0.062W
3529	4822 051 30472	4.7Ω 5% 0.062W
3530	4822 051 30102	1kΩ 5% 0.062W
3531	4822 051 20472	4.7kΩ 5% 0.1W
3531	4822 117 11507	6.8kΩ 1% 0.1W
3532	4822 117 12925	47kΩ 1% 0.063W 0603
3533	4822 116 52182	15Ω 5% 0.5W
3534	4822 117 12925	47kΩ 1% 0.063W 0603
3535	4822 051 30479	47Ω 5% 0.062W
3536	4822 051 30152	1.5Ω 5% 0.062W
3537	4822 052 10102	1kΩ 5% 0.33W
3538	4822 051 20333	33kΩ 5% 0.1W
3539	4822 051 20393	39kΩ 5% 0.1W
3540	4822 050 21003	10kΩ 1% 0.6W
3540	4822 050 23303	33kΩ 1% 0.6W
3541	4822 116 52186	22Ω 5% 0.5W
3543	4822 050 11002	1kΩ 1% 0.4W
3543	4822 050 24708	4.7Ω 1% 0.6W
3544	4822 051 20393	39kΩ 5% 0.1W
3545	4822 116 52244	15kΩ 5% 0.5W
3546	4822 050 21003	10kΩ 1% 0.6W
3547	4822 051 30008	Jumper 0603
3547	4822 051 30221	220Ω 5% 0.062W
3548	4822 050 11002	1kΩ 1% 0.4W
3549	4822 051 30393	39kΩ 5% 0.062W
3550▲	2122 663 00018	4.7Ω 20%
3551	4822 116 52219	330Ω 5% 0.5W
3552	4822 051 30222	2.2kΩ 5% 0.062W
3552	4822 117 12903	1.8kΩ 1% 0.063W 0603
3553	4822 051 30103	10kΩ 5% 0.062W
3553	4822 051 30153	15kΩ 5% 0.062W
3554	4822 053 20685	6.8MΩ 5% 0.25W
3555	4822 116 52298	680k 5% 0.5W
3556	4822 117 10834	47kΩ 1% 0.1W
3557	4822 117 13579	220kΩ 1% 0.1W 0805
3558	4822 117 10834	47kΩ 1% 0.1W
3559	4822 050 21003	10kΩ 1% 0.6W
3560	2322 734 61205	1.2MΩ 1% 0805
3563	4822 050 21003	10kΩ 1% 0.6W
3610	4822 051 30223	22kΩ 5% 0.062W
3611	4822 051 30222	2.2kΩ 5% 0.062W
3620	4822 116 80176	1Ω 5% 0.5W
3620	4822 116 81154	2.2Ω 5% 0.5W
3621	4822 116 80176	1Ω 5% 0.5W
3621	4822 116 81154	2.2Ω 5% 0.5W
3622	2122 101 02108	1.2Ω 5%
3622	4822 050 21208	1.2Ω 1% 0.6W
3622	4822 050 21808	1.8Ω 1% 0,6W
3623	4822 116 52251	18kΩ 5% 0.5W
3623	4822 116 52257	22kΩ 5% 0.5W
3624	4822 052 10158	1.5Ω 5% 0.33W
3625	4822 116 52206	120Ω 5% 0.5W
3625	4822 116 83872	220Ω 5% 0.5W
3626	4822 116 52175	100Ω 5% 0.5W
3626	4822 116 83872	220Ω 5% 0.5W
3627	4822 051 20223	22kΩ 5% 0.1W
3630	4822 051 30333	33kΩ 5% 0.062W
3630	4822 051 30393	39kΩ 5% 0.062W
3631	4822 051 30222	2.2kΩ 5% 0.062W
3632	4822 051 30183	18kΩ 5% 0.062W
3632	4822 051 30393	39kΩ 5% 0.062W
3633	4822 051 30563	56kΩ 5% 0.062W
3634	4822 116 52251	18kΩ 5% 0.5W
3634	4822 116 83882	39kΩ 5% 0.5W
3635	4822 116 52219	330Ω 5% 0.5W
3636	4822 051 30223	22kΩ 5% 0.062W
3637	4822 051 30103	10kΩ 5% 0.062W
3638	4822 051 30474	470kΩ 5% 0.062W
3639	4822 051 30563	56kΩ 5% 0.062W
3640	4822 051 30222	2.2kΩ 5% 0.062W
3641	4822 116 83883	470Ω 5% 0.5W
3642	4822 101 11193	47kΩ 30% 0.1W
3643	4822 051 30334	330kΩ 5% 0.062W
3644	4822 051 30221	220Ω 5% 0.062W
3645	4822 116 52245	150kΩ 5% 0.5W
3646	4822 117 12925	47kΩ 1% 0.063W 0603
3647	4822 051 20228	2.2Ω 5% 0.1W
3649	4822 051 30103	10kΩ 5% 0.062W
3652	4822 051 20479	47kΩ 5% 0.1W
3653	4822 051 20223	22kΩ 5% 0.1W
3654	4822 051 30472	4.7Ω 5% 0.062W
3655	4822 051 30103	10kΩ 5% 0.062W
3655	4822 051 30123	12kΩ 5% 0.1W
3656	4822 117 11817	1.2kΩ 1% 0.0625W
3657	4822 051 30223	22kΩ 5% 0.062W
3658	4822 051 30223	22kΩ 5% 0.062W
3659	4822 051 30222	2.2kΩ 5% 0.062W
3660	4822 051 30562	5.6kΩ 5% 0.063W 0603
3661	4822 116 52226	560Ω 5% 0.5W
3661	4822 116 83883	470Ω 5% 0.5W
3662	4822 051 30152	1.5Ω 5% 0.062W
3664	4822 117 12925	47kΩ 1% 0.063W 0603
3665	4822 051 30479	47Ω 5% 0.062W
3681	4822 116 52207	1.2kΩ 5% 0.5W
3682	4822 117 13632	100kΩ 1% 0603 0.62W
3683	4822 051 30103	10kΩ 5% 0.062W
3684	4822 051 30682	6.8Ω 5% 0.062W
3685	4822 051 30273	27kΩ 5% 0.062W
3686	4822 051 30563	56kΩ 5% 0.062W
3687	4822 116 52207	1.2kΩ 5% 0.5W
3688	4822 051 20684	680kΩ 5% 0.1W
3689	4822 050 11002	1kΩ 1% 0.4W
3690	4822 051 30109	10Ω 5% 0.062W
3690	4822 051 30183	18kΩ 5% 0.062W
3701	4822 051 30103	10kΩ 5% 0.062W
3702	4822 051 30682	6.8Ω 5% 0.062W
3703	4822 051 30333	33kΩ 5% 0.062W
3703	4822 051 30472	4.7Ω 5% 0.062W
3704	4822 117 10833	10kΩ 1% 0.1W
3705	4822 051 20828	8.2Ω 5% 0.1W
3706	2322 704 65102	5.1kΩ 1% 0603
3707	4822 051 30683	68kΩ 5% 0.062W
3708	4822 051 30563	56kΩ 5% 0.062W
3709	4822 117 11503	220Ω 1% 0.1W
3710	4822 051 30223	22kΩ 5% 0.062W
3711	4822 050 11204	120kΩ 1% 0.4W
3711	4822 050 21204	120kΩ 1% 0.6W
3712	4822 117 12706	10kΩ 1% 0.063W 0603
3713	4822 116 83884	47kΩ 5% 0.5W
3714	4822 117 12925	47kΩ 1% 0.063W 0603
3715	4822 117 12925	47kΩ 1% 0.063W 0603
3716	4822 117 12925	47kΩ 1% 0.063W 0603
3717	4822 117 13632	100kΩ 1% 0603 0.62W
3718	4822 117 13632	100kΩ 1% 0603 0.62W
3719	4822 117 11503	220Ω 1% 0.1W
3720	4822 117 11503	220Ω 1% 0.1W
3721	2322 704 65102	5.1kΩ 1% 0603
3722	4822 051 30683	68kΩ 5% 0.062W
3723	4822 051 30563	56kΩ 5% 0.062W
3724	4822 117 11503	220Ω 1% 0.1W
3725	4822 051 30223	22kΩ 5% 0.062W
3726	4822 117 11503	220Ω 1% 0.1W
3727	4822 117 11503	220Ω 1% 0.1W
3728	4822 116 52234	100kΩ 5% 0.5W
3729	4822 117 10837	100kΩ 1% 0.1W
3730	4822 117 11503	220Ω 1% 0.1W
3731	4822 117 11503	220Ω 1% 0.1W
3732	4822 051 30223	22kΩ 5% 0.062W
3733	4822 051 30223	22kΩ 5% 0.062W
3734	4822 051 20124	120kΩ 5% 0.1W
3735	4822 051 30683	68kΩ 5% 0.062W
3736	4822 051 30563	56kΩ 5% 0.062W
3737	2322 704 65102	5.1kΩ 1% 0603
3738	4822 051 20828	8.2Ω 5% 0.1W
3739	4822 051 30683	68kΩ 5% 0.062W
3740	2322 704 65102	5.1kΩ 1% 0603
3741	2322 704 61243	12.4kΩ 1% 0603
3742	4822 051 30563	56kΩ 5% 0.062W
3743	4822 117 11449	2.2kΩ 5% 0.1W 0805
3744	4822 117 12891	220kΩ 1%
3745	4822 051 30102	1kΩ 5% 0.062W
3746	4822 051 30223	22kΩ 5% 0.062W
3748	4822 051 30008	Jumper 0603
3749	4822 116 83883	470Ω 5% 0.5W
3750	4822 117 11449	2.2kΩ 5% 0.1W 0805
3751	4822 117 11449	2.2kΩ 5% 0.1W 0805
3752	4822 117 11449	2.2kΩ 5% 0.1W 0805
3760	4822 117 12891	220kΩ 1%
3790	4822 051 30272	2.7kΩ 5% 0.062W
3791	4822 051 30272	2.7kΩ 5% 0.062W
3792	4822 051 30103	10kΩ 5% 0.062W
3793	4822 051 30103	10kΩ 5% 0.062W
3794	4822 051 30103	10kΩ 5% 0.062W
3795	4822 051 30103	10kΩ 5% 0.062W
3796	4822 051 30272	2.7kΩ 5% 0.062W
3797	4822 051 30272	2.7kΩ 5% 0.062W
3798	4822 051 30153	15kΩ 5% 0.062W
3904	4822 052 10688	6.8Ω 5% 0.33W
3907	4822 051 20479	47kΩ 5% 0.1W
3910	4822 117 12521	68Ω 1% 0.1W
3928	4822 051 30008	Jumper 0603
3938	4822 117 11373	100Ω 1% 0805
3939	4822 051 30103	10kΩ 5% 0.062W
3940	4822 051 20561	560Ω 5% 0.1W
3941	4822 052 10688	6.8Ω 5% 0.33W
3946	4822 051 30151	150Ω 5% 0.062W
3947	4822 117 10353	150Ω 1% 0.1W
3948	4822 051 30151	150Ω 5% 0.062W
3949	4822 117 10353	150Ω 1% 0.1W
3951	4822 117 10353	150Ω 1% 0.1W
3952	4822 116 52201	75Ω 5% 0.5W
3953	4822 117 10353	150Ω 1% 0.1W
3954	4822 051 30151	150Ω 5% 0.062W
3955	4822 117 10353	150Ω 1% 0.1W
3956	4822 051 30151	150Ω 5% 0.062W
3957	4822 117 11373	100Ω 1% 0805
3959	4822 117 11373	100Ω 1% 0805
3960	4822 116 52201	75Ω 5% 0.5W
3961	4822 117 11373	100Ω 1% 0805
3962	4822 116 52201	75Ω 5% 0.5W
3963	4822 116 52175	100Ω 5% 0.5W
3964	4822 116 52201	75Ω 5% 0.5W
3965	4822 051 10102	1kΩ 2% 0.25W
3966	4822 051 10102	1kΩ 2% 0.25W
3967	4822 117 11373	100Ω 1% 0805
3968	4822 116 52201	75Ω 5% 0.5W
3969	4822 051 10102	1kΩ 2% 0.25W
3970	4822 051 10102	1kΩ 2% 0.25W
3971	4822 117 13632	100kΩ 1% 0603 0.62W
3972	4822 051 30102	1kΩ 5% 0.062W
3973	4822 051 30102	1kΩ 5% 0.062W
3974	4822 051 20109	10Ω 5% 0.1W
3975	4822 051 30393	39kΩ 5% 0.062W
3976	4822 051 30271	270Ω 5% 0.062W
3977	4822 051 30471	47Ω 5% 0.062W
3978	4822 051 30102	1kΩ 5% 0.062W
3979	4822 117 13632	100kΩ 1% 0603 0.62W
3980	4822 051 30102	1kΩ 5% 0.062W
3981	4822 051 30102	1kΩ 5% 0.062W
3982	4822 051 20109	10Ω 5% 0.1W
3983	4822 051 30273	27kΩ 5% 0.062W
3984	4822 051 30151	150Ω 5% 0.062W
3985	4822 051 30181	180Ω 5% 0.062W
3986	4822 051 30102	1kΩ 5% 0.062W
3987	4822 117 13632	100kΩ 1% 0603 0.62W
3988	4822 051 30102	1kΩ 5% 0.062W
3989	4822 051 30102	1kΩ 5% 0.062W
3990	4822 051 20109	10Ω 5% 0.1W
3991	4822 051 30393	39kΩ 5% 0.062W
3992	4822 116 52219	330Ω 5% 0.5W
3993	4822 051 30101	100Ω 5% 0.062W

3994	4822 050 11002	1kΩ 1% 0.4W
3995	4822 116 52201	75Ω 5% 0.5W
3996	4822 117 11373	100Ω 1% 0805
3997	4822 051 30151	150Ω 5% 0.062W
9103	4822 051 20008	Jumper 0805
9111	4822 051 20008	Jumper 0805
9128	4822 051 20008	Jumper 0805
9129	4822 051 20008	Jumper 0805
9130	4822 051 30008	Jumper 0603
9131	4822 051 30008	Jumper 0603
9200	4822 051 20008	Jumper 0805
9201	4822 051 30008	Jumper 0603
9202	4822 051 30008	Jumper 0603
9203	4822 051 30008	Jumper 0603
9204	4822 051 30008	Jumper 0603
9207	4822 051 30008	Jumper 0603
9208	4822 051 20008	Jumper 0805
9209	4822 051 20008	Jumper 0805
9210	4822 051 30008	Jumper 0603
9211	4822 051 30008	Jumper 0603
9212	4822 051 20008	Jumper 0805
9214	4822 051 20008	Jumper 0805
9215	4822 051 20008	Jumper 0805
9216	4822 051 20008	Jumper 0805
9217	4822 051 20008	Jumper 0805
9218	4822 051 20008	Jumper 0805
9219	4822 051 20008	Jumper 0805
9221	4822 051 20008	Jumper 0805
9222	4822 051 20008	Jumper 0805
9251	4822 051 30008	Jumper 0603
9265	4822 051 30008	Jumper 0603
9271	4822 051 30008	Jumper 0603
9272	4822 051 30008	Jumper 0603
9273	4822 051 30008	Jumper 0603
9274	4822 051 30008	Jumper 0603
9275	4822 051 30008	Jumper 0603
9276	4822 051 30008	Jumper 0603
9277	4822 051 30008	Jumper 0603
9278	4822 051 30008	Jumper 0603
9279	4822 051 30008	Jumper 0603
9280	4822 051 30008	Jumper 0603
9281	4822 051 30008	Jumper 0603
9282	4822 051 30008	Jumper 0603
9283	4822 051 30008	Jumper 0603
9284	4822 051 30008	Jumper 0603
9285	4822 051 30008	Jumper 0603
9288	4822 051 30008	Jumper 0603
9289	4822 051 30008	Jumper 0603
9291	4822 051 30008	Jumper 0603
9293	4822 051 30008	Jumper 0603
9294	4822 051 30008	Jumper 0603
9295	4822 051 30008	Jumper 0603
9296	4822 051 30008	Jumper 0603
9297	4822 051 30008	Jumper 0603
9298	4822 051 30008	Jumper 0603
9418	4822 051 20008	Jumper 0805
9421	4822 051 20008	Jumper 0805
9422	4822 051 30008	Jumper 0603
9424	4822 051 30008	Jumper 0603
9427	4822 051 30008	Jumper 0603
9428	4822 051 30008	Jumper 0603
9429	4822 051 30008	Jumper 0603
9430	4822 051 30008	Jumper 0603
9431	4822 051 30008	Jumper 0603
9432	4822 051 30008	Jumper 0603
9433	4822 051 30008	Jumper 0603
9434	4822 051 30008	Jumper 0603
9435	4822 051 30008	Jumper 0603
9436	4822 051 30008	Jumper 0603
9437	4822 051 30008	Jumper 0603
9438	4822 051 30008	Jumper 0603
9440	4822 051 30008	Jumper 0603
9441	4822 051 30008	Jumper 0603
9443	4822 051 30008	Jumper 0603
9481	4822 051 30008	Jumper 0603
9483	4822 051 30008	Jumper 0603
9499	4822 051 30008	Jumper 0603
9505	4822 051 30008	Jumper 0603
9560	4822 051 30008	Jumper 0603
9561	4822 051 20008	Jumper 0805
9567	4822 051 20008	Jumper 0805
9621	4822 051 30008	Jumper 0603
9624	4822 051 30008	Jumper 0603
9676	4822 051 30008	Jumper 0603
9677	4822 051 20008	Jumper 0805
9702	4822 051 30008	Jumper 0603
9704	4822 051 20008	Jumper 0805
9705	4822 051 20008	Jumper 0805
9706	4822 051 30471	47Ω 5% 0.062W
9707	4822 051 30008	Jumper 0603
9711	4822 051 30008	Jumper 0603
9713	4822 051 30008	Jumper 0603
9714	4822 051 20008	Jumper 0805
9716	4822 051 20008	Jumper 0805
9717	4822 051 30008	Jumper 0603
9908	4822 051 30008	Jumper 0603
9927	4822 051 20008	Jumper 0805
9960	4822 051 30008	Jumper 0603
9962	4822 051 30008	Jumper 0603
9966	4822 051 30008	Jumper 0603
9979	4822 051 20008	Jumper 0805
9981	4822 051 20008	Jumper 0805
9985	4822 051 30008	Jumper 0603
9986	4822 051 20008	Jumper 0805
9987	4822 051 20008	Jumper 0805
9988	4822 051 20008	Jumper 0805
9989	4822 051 20008	Jumper 0805
9990	4822 051 20008	Jumper 0805
9991	4822 051 20008	Jumper 0805
9992	4822 051 20008	Jumper 0805
9993	4822 051 20008	Jumper 0805
9994	4822 051 20008	Jumper 0805
9997	4822 051 20008	Jumper 0805

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5100▲	3104 308 20431	Transf. BS25126-03
5101	4822 526 10704	Bead 50 Ω at 100MHz
5102	2422 535 94639	10µH 20%
5103	4822 526 10704	Bead 50 Ω at 100MHz
5104	4822 157 11411	Bead 80Ω at 100MHz
5105	2422 535 94632	1µH 30%
5106	4822 157 11716	Bead 30Ω at 100MHz
5107	4822 157 11716	Bead 30Ω at 100MHz
5108	4822 526 10704	Bead 50 Ω at 100MHz
5109	4822 157 11411	Bead 80Ω at 100MHz
5110	4822 526 10704	Bead 50 Ω at 100MHz
5111	4822 157 11411	Bead 80Ω at 100MHz
5113	4822 157 11411	Bead 80Ω at 100MHz
5113	4822 526 10704	Bead 50 Ω at 100MHz
5130	4822 157 11411	Bead 80Ω at 100MHz
5131	4822 157 50964	100µH
5400	4822 157 11869	33µH 10%
5401	2422 536 00059	12µH 10%
5402	3198 018 21510	150µH 10%
5410▲	3128 138 39091	Transformer CE165T
5411	4822 157 71097	0.56µH 10%
5421	3104 308 20471	Linearity coil 28"
5421	3104 308 20611	Linearity coil 5µH 30"
5422	2422 531 02357	Bridge coil W7132-004Y
5422	3104 308 20671	Bridge coil BC21215-01
5423	4822 157 71097	0.56µH 10%
5425	4822 157 11411	Bead 80Ω at 100MHz
5426	4822 157 70826	2.4µH
5430▲	3104 308 20491	LOT 1392.9014A
5430▲	3104 308 20551	1392.9012B Y
5461	4822 157 11411	Bead 80Ω at 100MHz
5463	4822 157 11411	Bead 80Ω at 100MHz
5465	4822 157 11411	Bead 80Ω at 100MHz
5466	2422 535 94996	18µH 10%
5467	4822 157 11411	Bead 80Ω at 100MHz
5469	4822 157 11411	Bead 80Ω at 100MHz
5503	2422 549 44877	Filter 45mH DMF2845H
5504▲	2422 549 44362	Mains filter DMF3512H
5505	4822 157 11411	Bead 80Ω at 100MHz
5506▲	2422 531 02501	Transf. S30940-04
5507	4822 157 11411	Bead 80Ω at 100MHz
5509	4822 157 11411	Bead 80Ω at 100MHz
5511	3104 308 20511	Filter mains 40mH
5512▲	3104 308 20441	Transf. EE41X33
5513	4822 157 11869	33µH 10%
5514	4822 157 11869	33µH 10%
5515	4822 157 11869	33µH 10%
5517	4822 157 11411	Bead 80Ω at 100MHz
5518	4822 526 10704	Bead 50 Ω at 100MHz
5519	4822 157 11716	Bead 30Ω at 100MHz
5520	4822 157 11411	Bead 80Ω at 100MHz
5620	4822 157 11771	0.09µH 10%
5621	3104 308 20571	Transf. S13974-03
5701	2422 536 00385	68µH 10%
5701	2422 536 00951	68µH 20% LHL10
5702	2422 536 00385	68µH 10%
5702	2422 536 00951	68µH 20% LHL10
5703	4822 157 11716	Bead 30Ω at 100MHz
5707	4822 157 11411	Bead 80Ω at 100MHz
5708	4822 157 11411	Bead 80Ω at 100MHz
5711	4822 157 11411	Bead 80Ω at 100MHz
5712	4822 157 11411	Bead 80Ω at 100MHz
5715	4822 157 11411	Bead 80Ω at 100MHz
5716	4822 157 11411	Bead 80Ω at 100MHz
5720	2422 536 00385	68µH 10%
5720	2422 536 00951	68µH 20% LHL10
5721	2422 536 00385	68µH 10%
5721	2422 536 00951	68µH 20% LHL10
5722	4822 157 11411	Bead 80Ω at 100MHz
5723	4822 157 11411	Bead 80Ω at 100MHz
5725	4822 157 11411	Bead 80Ω at 100MHz
5900	4822 157 11867	5.6µH 5%
5901	4822 157 11299	10µH 5%
5902	4822 157 11869	33µH 10%
5903	4822 157 10359	33µH
5904	4822 157 11411	Bead 80Ω at 100MHz

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6080	4822 130 11397	BAS316
6082	4822 130 11528	1PS76SB10
6082	4822 130 80622	BAT54
6084	4822 130 11522	UDZ15B
6103	4822 130 41601	BYV95A
6104	9340 548 69115	PDZ27B
6105	4822 130 34281	BZX79-B15
6106	3198 010 52290	BZX79-B22
6107	4822 130 11572	STPS8H100F
6108	4822 130 11528	1PS76SB10
6109	4822 130 31083	BYW55
6110	9340 418 70133	BYV27-600
6111	9322 161 78682	SB360L-7024
6112	4822 130 11551	UDZS10B
6113	4822 130 11596	BYW29EX-200
6115	4822 130 11397	BAS316
6115	4822 130 11528	1PS76SB10
6120	4822 130 30621	1N4148
6121	4822 130 30621	1N4148
6122	3198 010 53980	BZX79-B3V9
6123	9340 548 71115	PDZ33B
6124	9340 548 71115	PDZ33B
6125	9340 548 71115	PDZ33B
6130	4822 130 11572	STPS8H100F
6132	9322 171 80685	BZX384-B6V8
6133	4822 130 11397	BAS316
6134	4822 130 11397	BAS316
6141	4822 130 11522	UDZ15B
6141	9322 129 42685	BZM55-C15
6142	4822 130 11528	1PS76SB10
6144	4822 130 11397	BAS316
6147	4822 130 34278	BZX79-B6V8
6149	4822 130 11397	BAS316
6200	9340 548 71115	PDZ33B
6203	4822 130 11397	BAS316
6400	4822 130 70055	BYV27-400
6402	4822 130 11397	BAS316
6405	4822 130 34383	BZX79-B47
6406	4822 130 11397	BAS316
6407	4822 130 11397	BAS316
6408	4822 130 41601	BYV95A
6421	4822 130 10753	BY359X-1500
6422	4822 130 10218	BY229X-800
6442	4822 130 11522	UDZ15B
6455	4822 130 11397	BAS316
6456	5322 130 34337	BAV99
6457	9322 102 64685	UDZ2.7B
6458	3198 020 55680	BZX384-C5V6
6460	4822 130 41487	BYV95C
6462	9322 127 32682	BYW76-RAS15/10
6462	9322 192 67682	BYW76-PK1
6464	9322 192 67682	BYW76-PK1
6465	3139 120 52021	BYV29X-500
6480	4822 130 41601	BYV95A
6481	4822 130 11522	UDZ15B
6482	4822 130 11397	BAS316
6483	4822 130 11528	1PS76SB10
6483	4822 130 80622	BAT54
6493	4822 130 11528	1PS76SB10
6493	4822 130 80622	BAT54
6499	4822 130 11551	UDZS10B
6505	4822 130 34281	BZX79-B15
6506	4822 130 10654	BAT254
6506	4822 130 80622	BAT54
6507	9322 150 19685	BZX384-C56
6508	9322 150 19685	BZX384-C56
6509	4822 130 11397	BAS316
6510	4822 130 34142	BZX79-B33
6510	4822 130 61219	BZX79-B10
6511	4822 130 11397	BAS316
6512	4822 130 11397	BAS316
6513	9322 150 19685	BZX384-C56
6515	4822 130 33657	BZV85-C6V8
6516	4822 130 11397	BAS316
6517	4822 130 11528	1PS76SB10
6517	4822 130 80622	BAT54
6518	9340 548 69115	PDZ27B
6519	4822 130 41601	BYV95A
6520	4822 130 30621	1N4148
6522	4822 130 11397	BAS316
6523	4822 130 10654	BAT254
6523	4822 130 80622	BAT54
6525	3198 010 10640	Bridge cell GBU4K
6525	4822 130 10741	GBU6J
6530	4822 130 41487	BYV95C

6533	4822 130 10654	BAT254
6533	4822 130 80622	BAT54
6534	9322 165 72687	DTV1500MFP
6535	4822 130 11572	STPS8H100F
6536	4822 130 11572	STPS8H100F
6537	4822 130 11397	BAS316
6538	4822 130 11397	BAS316
6614	4822 130 11528	1PS76SB10
6615	4822 130 11397	BAS316
6616	4822 130 11397	BAS316
6617	4822 130 11397	BAS316
6618	4822 130 11397	BAS316
6619	4822 130 41601	BYV95A
6620	5322 130 31938	BYV27-200
6621	4822 130 41601	BYV95A
6622	5322 130 32296	BZV85-C10
6623	4822 130 11397	BAS316
6624	4822 130 11397	BAS316
6625	4822 130 11397	BAS316
6626	4822 130 11397	BAS316
6627	4822 130 11397	BAS316
6701	4822 130 11397	BAS316
6745	4822 130 11551	UDZS10B
6901	9340 548 52115	PDZ5.1B

7100	4822 130 44568	BC557B
7101	4822 130 40981	BC337-25
7102	4822 130 11417	STP3NB60FP
7102	9322 126 65687	STP5NB60FP
7103	9322 149 04682	TCET1102
7120	5322 130 60159	BC846B
7130	5322 130 60159	BC846B
7131	4822 130 11336	STP16NE06FP
7132	5322 130 60159	BC846B
7133	4822 130 60373	BC856B
7140	5322 130 60159	BC846B
7141	4822 130 11336	STP16NE06FP
7210	5322 130 60159	BC846B
7211	4822 130 42804	BC817-25
7408	5322 130 44647	BC368
7409	5322 130 60159	BC846B
7421	9340 210 30127	BU2520DX
7440	4822 209 70672	LM358N Selection
7441	4822 130 60373	BC856B
7442	4822 130 60373	BC856B
7443	5322 130 60159	BC846B
7445	5322 130 60159	BC846B
7450	5322 209 61472	LM393M
7455	4822 209 73852	PMBT2369
7480	4822 130 11417	STP3NB60FP
7482	4822 130 11418	TCDT1102G
7486	5322 130 60159	BC846B
7487	5322 130 60159	BC846B
7501	5322 130 60159	BC846B
7502	4822 130 40959	BC547B
7502	4822 130 40981	BC337-25
7503	9340 380 60127	BT151X-650R
7504	9322 179 23687	STP20NM60
7504	9322 194 28687	STP5NK40ZFP
7505	4822 130 60373	BC856B
7506	4822 209 14933	TL431IZ
7507	9322 149 04682	TCET1102
7508	4822 130 41646	BF423
7528	4822 130 40981	BC337-25
7529	4822 130 44461	BC546B
7530	5322 130 60159	BC846B
7611	5322 130 60159	BC846B
7612	5322 130 60159	BC846B
7613	4822 209 14933	TL431IZ
7613	4822 209 81397	TL431CLPST
7614	5322 130 60159	BC846B
7620	4822 209 90009	TDA8177
7641	5322 130 60159	BC846B
7652	5322 130 60159	BC846B
7653	5322 130 60159	BC846B
7654	4822 130 60373	BC856B
7680	4822 209 60956	TDA7052/N2
7681	5322 130 60159	BC846B
7682	5322 130 44647	BC368
7700	9322 163 86682	TDA7490L
7701	5322 130 60159	BC846B
7702	9322 163 86682	TDA7490L
7703	5322 130 60159	BC846B
7704	5322 130 60159	BC846B
7705	5322 130 60159	BC846B
7706	4822 130 60373	BC856B
7707	5322 130 60159	BC846B
7902	5322 130 60159	BC846B
7910	9322 166 03682	LD1085V36
7911	4822 209 72042	L78L05ACZ
7912	5322 209 86445	LM7805CT
7990	4822 130 60373	BC856B
7991	5322 130 60159	BC846B
7992	4822 130 60373	BC856B
7993	5322 130 60159	BC846B
7994	4822 130 60373	BC856B
7995	5322 130 60159	BC846B

Small Signal Board [B]

Various

1001	2422 543 89022	Xtal 6MHz 20p
1301	2422 540 98456	Resonator 12MHz
1304	2422 025 17104	Connector 7p m SMD
1305	2422 543 01184	Xtal 4.433619MHz 20p
1308	2422 543 01183	Xtal 3.579545MHz 16p
1402	2422 025 16966	Connector 5p m SMD
1403▲	2422 086 11092	Fuse 500mA 50V F SMD
1406	2422 549 44324	Filt. 5.5/5.74MHz
1407	2422 549 44043	Filt. 4.5MHz TPSCC*MB
1408	2422 549 44373	SAW 38MHz K3955L
1409	2422 549 44374	SAW 38MHz K9352L
1409	2422 549 44389	SAW 38.9MHz K9361L
1410	2422 549 44376	SAW 38MHz M3956L
1410	2422 549 44388	SAW 38.9MHz K7265L
1651	2422 543 89019	Xtal 18.432MHz 12p
1680	2422 025 16961	Connector 6p m SMD
1681	2422 025 17103	Connector 3p m SMD
1682	2422 025 16729	Connector 10p f foil
1702	2422 540 98456	Resonator 12MHz
8304	3104 311 04661	Cable 7p/220/7p
8680	3104 311 03231	Cable 6p/340/6p
8682	3104 311 02951	Flex foil 10p/280/10p

2001	2222 867 15339	33pF 5% 50V 0603
2002	4822 126 11669	27pF 5% 50V 0603
2003	4822 126 13879	220nF +80-20% 16V
2004	4822 126 13879	220nF +80-20% 16V
2005	2238 586 59812	100nF 20% 50V 0603
2006	2238 586 59812	100nF 20% 50V 0603
2007	2238 586 59812	100nF 20% 50V 0603
2008	2238 586 59812	100nF 20% 50V 0603
2010	4822 126 11785	47pF 5% 50V 0603
2011	4822 126 11785	47pF 5% 50V 0603
2012	4822 126 11785	47pF 5% 50V 0603
2013	4822 124 12095	100µF 20% 16V
2016	4822 124 12095	100µF 20% 16V
2017	2238 586 59812	100nF 20% 50V 0603
2019	2238 586 59812	100nF 20% 50V 0603
2020	4822 126 13883	220pF 5% 50V
2022	2238 586 59812	100nF 20% 50V 0603
2023	2238 586 59812	100nF 20% 50V 0603
2024	2238 586 59812	100nF 20% 50V 0603
2025	2238 586 59812	100nF 20% 50V 0603
2026	2238 586 59812	100nF 20% 50V 0603
2027	2238 586 59812	100nF 20% 50V 0603
2028	2238 586 59812	100nF 20% 50V 0603
2029	2238 586 59812	100nF 20% 50V 0603
2031	2238 586 59812	100nF 20% 50V 0603
2033	4822 126 14226	82pF 5% 50V 0603
2034	4822 126 14226	82pF 5% 50V 0603
2035	4822 126 14226	82pF 5% 50V 0603
2036	4822 126 14226	82pF 5% 50V 0603
2037	4822 126 14226	82pF 5% 50V 0603
2038	2238 586 59812	100nF 20% 50V 0603
2039	2238 586 59812	100nF 20% 50V 0603
2040	2238 586 59812	100nF 20% 50V 0603
2303	4822 122 33177	10nF 20% 50V
2304	4822 122 33741	10pF 10% 50V
2306	4822 126 13881	470pF 5% 50V
2307	2238 586 59812	100nF 20% 50V 0603
2308	4822 122 33741	10pF 10% 50V
2312	2020 552 96659	33µF 5% 50V 1206
2313	2020 552 96685	100nF 5% 25V 1206
2314	4822 124 12095	100µF 20% 16V
2315	2238 586 59812	100nF 20% 50V 0603
2317	2022 552 05679	1µF 10% 16V 0805
2318	2238 916 15641	22nF 10% 25V 0603
2319	4822 126 14247	1.5nF 50V 0603
2320	4822 122 33741	10pF 10% 50V
2321	2238 586 59812	100nF 20% 50V 0603
2323	2238 586 59812	100nF 20% 50V 0603
2324	5322 126 11583	10nF 10% 50V 0603
2325	2238 586 59812	100nF 20% 50V 0603
2326	5322 126 11583	10nF 10% 50V 0603
2328	4822 122 33761	22pF 5% 50V
2329	2238 586 59812	100nF 20% 50V 0603
2330	2238 586 59812	100nF 20% 50V 0603
2331	2238 586 59812	100nF 20% 50V 0603
2332	2238 586 59812	100nF 20% 50V 0603
2333	4822 126 14491	2.2µF 10V 0805
2334	4822 126 14491	2.2µF 10V 0805
2335	2238 586 59812	100nF 20% 50V 0603
2336	4822 126 14491	2.2µF 10V 0805
2337	2238 586 59812	100nF 20% 50V 0603
2338	2238 586 59812	100nF 20% 50V 0603
2340	4822 124 12095	100µF 20% 16V
2342	2238 586 59812	100nF 20% 50V 0603
2350	2238 586 59812	100nF 20% 50V 0603
2351	2238 586 59812	100nF 20% 50V 0603
2352	2238 586 59812	100nF 20% 50V 0603
2356	2238 586 59812	100nF 20% 50V 0603
2357	2238 586 59812	100nF 20% 50V 0603
2358	5322 126 11579	3.3nF 10% 63V
2359	4822 122 33752	15pF 5% 50V
2360	3198 016 31280	1.2pF 0.25pF 50V 0603
2361	3198 016 31280	1.2pF 0.25pF 50V 0603
2362	4822 126 11663	12pF 5% 50V 0603
2363	4822 126 13881	470pF 5% 50V
2365	2238 586 59812	100nF 20% 50V 0603
2366	2238 586 59812	100nF 20% 50V 0603
2367	2238 586 59812	100nF 20% 50V 0603
2368	2238 586 59812	100nF 20% 50V 0603
2369	2238 586 59812	100nF 20% 50V 0603
2370	2238 586 59812	100nF 20% 50V 0603
2371	4822 126 13193	4.7nF 10% 63V
2372	4822 126 14043	1µF +80-20% 16V 0805
2373	2238 586 59812	100nF 20% 50V 0603
2374	4822 126 14491	2.2µF 10V 0805
2375	2238 916 15641	22nF 10% 25V 0603
2376	2238 586 59812	100nF 20% 50V 0603
2377	4822 124 12095	100µF 20% 16V
2378	2238 586 59812	100nF 20% 50V 0603
2384	2238 586 59812	100nF 20% 50V 0603
2386	4822 126 13883	220pF 5% 50V
2388	3198 017 33330	33nF 20% 16V 0603
2389	4822 126 14491	2.2µF 10V 0805
2390	2238 586 59812	100nF 20% 50V 0603
2391	2238 586 59812	100nF 20% 50V 0603
2392	4822 126 13193	4.7nF 10% 63V
2394	4822 126 14491	2.2µF 10V 0805
2395	5322 126 11583	10nF 10% 50V 0603
2396	5322 126 11583	10nF 10% 50V 0603
2397	5322 126 11583	10nF 10% 50V 0603
2399	4822 126 14221	68pF 5% 50V NP0 0603
2404	2022 552 05679	1µF 10% 16V 0805
2405	4822 126 13193	4.7nF 10% 63V
2406	4822 126 13193	4.7nF 10% 63V
2409	4822 126 14491	2.2µF 10V 0805
2411	2238 586 59812	100nF 20% 50V 0603
2412	4822 126 13193	4.7nF 10% 63V
2417	3198 017 44740	470nF 10V 0603
2418	4822 126 13956	6.8pF 5% 63V 0603
2418	4822 126 14487	8.2pF 0.5% 50V 0603
2420	3198 016 31510	150pF 10% 50V 0603
2425	4822 124 12095	100µF 20% 16V
2431	2238 586 59812	100nF 20% 50V 0603
2501	4822 126 11785	47pF 5% 50V 0603
2502	4822 126 14107	330nF +-80/-20% 25V
2503	4822 126 14107	330nF +-80/-20% 25V
2504	4822 126 14107	330nF +-80/-20% 25V
2505	4822 126 14107	330nF +-80/-20% 25V
2506	4822 126 14107	330nF +-80/-20% 25V
2507	4822 126 14107	330nF +-80/-20% 25V
2508	4822 124 12095	100µF 20% 16V
2509	4822 124 23002	10µF 16V
2510	2022 552 05679	1µF 10% 16V 0805
2511	2022 552 05679	1µF 10% 16V 0805
2512	4822 126 13879	220nF +80-20% 16V
2513	4822 124 12084	1µF 20% 50V
2515	2020 552 94427	100pF 5% 50V
2516	2020 552 96221	10µF 20% 6.3V 0805
2516	2020 552 96637	10µF 10% 6.3V 0805
2520	2238 586 59812	100nF 20% 50V 0603
2521	2238 586 59812	100nF 20% 50V 0603
2522	4822 126 13881	470pF 5% 50V
2523	3198 016 31020	1nF 25V 0603
2524	2238 586 59812	100nF 20% 50V 0603
2525	4822 126 13881	470pF 5% 50V
2526	3198 016 31020	1nF 25V 0603
2528	4822 126 14585	100nF 10% 0805 50V
2529	4822 126 14472	1µF 10% 10V 0805
2530	4822 126 14472	1µF 10% 10V 0805
2548	4822 124 23002	10µF 16V
2549	4822 124 23002	10µF 16V
2550	2020 552 94427	100pF 5% 50V
2552	4822 126 13881	470pF 5% 50V
2553	4822 126 13881	470pF 5% 50V
2554	4822 126 13881	470pF 5% 50V
2555	4822 126 13881	470pF 5% 50V
2562	3198 016 31020	1nF 25V 0603
2563	3198 016 31020	1nF 25V 0603
2564	3198 016 31020	1nF 25V 0603

2565	3198 016 31020	1nF 25V 0603
2566	3198 016 31020	1nF 25V 0603
2567	3198 016 31020	1nF 25V 0603
2568	3198 016 31020	1nF 25V 0603
2569	3198 016 31020	1nF 25V 0603
2570	3198 016 31020	1nF 25V 0603
2571	2020 552 94427	100pF 5% 50V
2572	3198 016 31020	1nF 25V 0603
2573	3198 016 31020	1nF 25V 0603
2574	3198 016 31020	1nF 25V 0603
2575	3198 016 31020	1nF 25V 0603
2576	3198 016 31020	1nF 25V 0603
2577	3198 016 31020	1nF 25V 0603
2578	2020 552 94427	100pF 5% 50V
2579	2020 552 94427	100pF 5% 50V
2582	3198 016 31020	1nF 25V 0603
2583	3198 016 31020	1nF 25V 0603
2592	5322 126 11578	1nF 10% 50V 0603
2593	3198 016 31020	1nF 25V 0603
2594	3198 016 31020	1nF 25V 0603
2595	3198 016 31020	1nF 25V 0603
2600	2022 552 05679	1µF 10% 16V 0805
2601	2022 552 05679	1µF 10% 16V 0805
2602	2022 552 05679	1µF 10% 16V 0805
2603	2022 552 05679	1µF 10% 16V 0805
2604	2022 552 05679	1µF 10% 16V 0805
2609	3198 016 31020	1nF 25V 0603
2610	4822 126 14238	2.2nF 50V 0603
2611	3198 016 31020	1nF 25V 0603
2612	3198 017 41050	1µF 10V 0603
2629	4822 126 14107	330nF +-80/-20% 25V
2630	4822 126 14491	2.2µF 10V 0805
2632	4822 126 14107	330nF +-80/-20% 25V
2634	3198 016 31020	1nF 25V 0603
2637	4822 126 14107	330nF +-80/-20% 25V
2640	4822 126 13879	220nF +80-20% 16V
2643	2022 552 05679	1µF 10% 16V 0805
2643	4822 126 14107	330nF +-80/-20% 25V
2644	3198 016 31020	1nF 25V 0603
2645	2022 552 05679	1µF 10% 16V 0805
2645	4822 126 14107	330nF +-80/-20% 25V
2646	4822 126 14491	2.2µF 10V 0805
2649	4822 126 14491	2.2µF 10V 0805
2651	2238 586 59812	100nF 20% 50V 0603
2652	4822 126 11785	47pF 5% 50V 0603
2653	4822 126 14107	330nF +-80/-20% 25V
2654	4822 126 13881	470pF 5% 50V
2659	4822 126 13881	470pF 5% 50V
2660	4822 126 13881	470pF 5% 50V
2661	4822 126 14107	330nF +-80/-20% 25V
2662	4822 126 14107	330nF +-80/-20% 25V
2663	4822 126 13881	470pF 5% 50V
2664	4822 126 13881	470pF 5% 50V
2665	4822 124 12095	100µF 20% 16V
2666	4822 124 12095	100µF 20% 16V
2667	3198 016 33380	3.3pF 50V 0603
2668	3198 016 33380	3.3pF 50V 0603
2670	2238 586 59812	100nF 20% 50V 0603
2673	3198 016 31020	1nF 25V 0603
2674	3198 016 31020	1nF 25V 0603
2677	4822 124 23002	10µF 16V
2678	4822 124 23002	10µF 16V
2679	2238 586 59812	100nF 20% 50V 0603
2680	4822 124 23002	10µF 16V
2681	2238 586 59812	100nF 20% 50V 0603
2682	4822 124 23002	10µF 16V
2686	3198 016 31020	1nF 25V 0603
2687	3198 016 31020	1nF 25V 0603
2690	2238 586 59812	100nF 20% 50V 0603
2693	4822 126 13883	220pF 5% 50V
2694	3198 016 31020	1nF 25V 0603
2695	4822 124 12095	100µF 20% 16V
2697	2238 586 59812	100nF 20% 50V 0603
2698	4822 126 14491	2.2µF 10V 0805
2699	4822 126 14491	2.2µF 10V 0805
2701	4822 126 13956	6.8pF 5% 63V 0603
2704	4822 122 33752	15pF 5% 50V
2707	4822 126 11663	12pF 5% 50V 0603
2709	2238 586 59812	100nF 20% 50V 0603
2710	2238 586 59812	100nF 20% 50V 0603
2711	2238 586 59812	100nF 20% 50V 0603
2712	2238 586 59812	100nF 20% 50V 0603
2713	4822 122 33761	22pF 5% 50V
2714	4822 122 33761	22pF 5% 50V
2716	2238 586 59812	100nF 20% 50V 0603
2717	2238 586 59812	100nF 20% 50V 0603
2718	4822 122 33752	15pF 5% 50V
2719	4822 122 33752	15pF 5% 50V
2720	4822 122 33752	15pF 5% 50V
2721	2020 552 94427	100pF 5% 50V
2722	2020 552 94427	100pF 5% 50V
2723	4822 126 14225	56pF 5% 50V 0603
2724	2020 552 94427	100pF 5% 50V
2725	2238 586 59812	100nF 20% 50V 0603
2726	2238 586 59812	100nF 20% 50V 0603
2727	2238 586 59812	100nF 20% 50V 0603
2728	2020 021 91854	10µF 20% 16V
2729	2238 586 59812	100nF 20% 50V 0603
2730	2020 021 91557	100µF 20% 16V
2731	2238 586 59812	100nF 20% 50V 0603
2732	5322 126 11578	1nF 10% 50V 0603
2733	2238 586 59812	100nF 20% 50V 0603
2734	2238 586 59812	100nF 20% 50V 0603
2735	2238 586 59812	100nF 20% 50V 0603
2736	2238 586 59812	100nF 20% 50V 0603
2737	4822 126 11669	27pF 5% 50V 0603
2738	2238 586 59812	100nF 20% 50V 0603
2739	2020 021 91557	100µF 20% 16V
2740	2238 916 15641	22nF 10% 25V 0603
2741	2238 916 15641	22nF 10% 25V 0603
2742	2238 916 15641	22nF 10% 25V 0603
2743	2238 586 59812	100nF 20% 50V 0603
2744	2238 586 59812	100nF 20% 50V 0603
2745	2238 586 59812	100nF 20% 50V 0603
2746	2238 586 59812	100nF 20% 50V 0603
2747	4822 126 14221	68pF 5% 50V NP0 0603
2748	2238 586 59812	100nF 20% 50V 0603
2749	2238 586 59812	100nF 20% 50V 0603
2750	2020 552 96618	1nF 10% 50V 0402
2751	2020 552 96618	1nF 10% 50V 0402
2752	2020 552 96618	1nF 10% 50V 0402
2753	2020 552 96618	1nF 10% 50V 0402
2754	5322 126 11578	1nF 10% 50V 0603
2755	2020 552 96618	1nF 10% 50V 0402
2756	2020 552 96618	1nF 10% 50V 0402
2757	2238 916 15641	22nF 10% 25V 0603
2758	2020 021 91854	10µF 20% 16V
2759	2020 552 96618	1nF 10% 50V 0402
2760	2238 787 15641	22nF 5% 16V 0402
2761	2238 787 15641	22nF 5% 16V 0402
2762	2238 787 15641	22nF 5% 16V 0402
2763	2238 787 15641	22nF 5% 16V 0402
2764	2238 787 15641	22nF 5% 16V 0402
2766	4822 122 33752	15pF 5% 50V
2767	4822 122 33752	15pF 5% 50V
2768	2020 552 96618	1nF 10% 50V 0402
2769	2020 552 96618	1nF 10% 50V 0402
2770	2020 552 96618	1nF 10% 50V 0402
2771	2020 552 96618	1nF 10% 50V 0402
2772	2020 552 96618	1nF 10% 50V 0402
2773	2020 552 96618	1nF 10% 50V 0402
2774	4822 126 11669	27pF 5% 50V 0603
2775	4822 126 11663	12pF 5% 50V 0603
2776	4822 126 11663	12pF 5% 50V 0603
2777	2020 552 96618	1nF 10% 50V 0402
2778	2020 552 96618	1nF 10% 50V 0402
2779	4822 126 11663	12pF 5% 50V 0603
2780	2020 552 96618	1nF 10% 50V 0402
2781	2020 552 96618	1nF 10% 50V 0402
2782	2020 552 96618	1nF 10% 50V 0402
2783	2238 586 59812	100nF 20% 50V 0603
2784	2238 787 15641	22nF 5% 16V 0402
2785	2238 787 15641	22nF 5% 16V 0402
2788	2238 586 59812	100nF 20% 50V 0603
2789	2238 586 59812	100nF 20% 50V 0603
2790	2238 586 59812	100nF 20% 50V 0603
2791	2238 586 59812	100nF 20% 50V 0603
2792	2238 586 59812	100nF 20% 50V 0603
2793	2238 586 59812	100nF 20% 50V 0603
2794	2020 552 96618	1nF 10% 50V 0402
2795	2020 552 96618	1nF 10% 50V 0402
2796	2020 552 96618	1nF 10% 50V 0402
2797	2020 552 96618	1nF 10% 50V 0402
2798	2020 552 96618	1nF 10% 50V 0402
2799	2020 552 96618	1nF 10% 50V 0402
2800	2238 586 59812	100nF 20% 50V 0603
2801	4822 126 11663	12pF 5% 50V 0603
2802	2238 586 59812	100nF 20% 50V 0603
2803	2238 586 59812	100nF 20% 50V 0603
2804	2238 586 59812	100nF 20% 50V 0603
2805	2020 552 96618	1nF 10% 50V 0402
2806	2238 586 59812	100nF 20% 50V 0603
2807	2238 586 59812	100nF 20% 50V 0603
2808	2020 552 96618	1nF 10% 50V 0402
2809	2020 552 96618	1nF 10% 50V 0402
2810	2238 586 59812	100nF 20% 50V 0603
2811	2238 586 59812	100nF 20% 50V 0603
2812	2238 586 59812	100nF 20% 50V 0603
2813	2238 586 59812	100nF 20% 50V 0603
2814	2238 586 59812	100nF 20% 50V 0603
2815	4822 126 14223	2.2pF 10% 50V 0603
2816	4822 126 14223	2.2pF 10% 50V 0603
2817	2238 586 59812	100nF 20% 50V 0603
2818	4822 126 14223	2.2pF 10% 50V 0603
2819	2238 586 59812	100nF 20% 50V 0603
2820	2238 586 59812	100nF 20% 50V 0603
2821	2238 787 15641	22nF 5% 16V 0402
2822	2238 787 15641	22nF 5% 16V 0402
2823	2238 586 59812	100nF 20% 50V 0603
2824	2238 586 59812	100nF 20% 50V 0603
2825	2238 586 59812	100nF 20% 50V 0603
2826	2238 586 59812	100nF 20% 50V 0603
2827	2238 586 59812	100nF 20% 50V 0603
2828	2020 021 91854	10µF 20% 16V
2829	2020 021 91557	100µF 20% 16V
2830	2238 586 59812	100nF 20% 50V 0603
2831	2238 586 59812	100nF 20% 50V 0603
2832	2238 586 59812	100nF 20% 50V 0603
2833	2238 586 59812	100nF 20% 50V 0603
2834	2238 586 59812	100nF 20% 50V 0603
2835	2238 586 59812	100nF 20% 50V 0603
2836	2238 586 59812	100nF 20% 50V 0603
2837	2020 021 91557	100µF 20% 16V
2838	4822 126 11669	27pF 5% 50V 0603
2840	4822 117 13605	Jumper 0402
2841	2238 586 59812	100nF 20% 50V 0603
2842	4822 126 11669	27pF 5% 50V 0603
2844	2238 586 59812	100nF 20% 50V 0603
2845	2238 586 59812	100nF 20% 50V 0603
2846	2238 586 59812	100nF 20% 50V 0603
2847	2020 021 91854	10µF 20% 16V
2848	2238 586 59812	100nF 20% 50V 0603
2849	2238 586 59812	100nF 20% 50V 0603
2850	2238 586 59812	100nF 20% 50V 0603
2851	2238 586 59812	100nF 20% 50V 0603
2852	2238 586 59812	100nF 20% 50V 0603
2853	2238 586 59812	100nF 20% 50V 0603
2854	2238 586 59812	100nF 20% 50V 0603
2855	2238 586 59812	100nF 20% 50V 0603
2856	2238 586 59812	100nF 20% 50V 0603
2857	2238 586 59812	100nF 20% 50V 0603
2858	2238 586 59812	100nF 20% 50V 0603
2859	2238 586 59812	100nF 20% 50V 0603
2860	2238 586 59812	100nF 20% 50V 0603
2861	2238 586 59812	100nF 20% 50V 0603
2862	2238 586 59812	100nF 20% 50V 0603
2863	2238 586 59812	100nF 20% 50V 0603
2864	2238 586 59812	100nF 20% 50V 0603
2865	2238 586 59812	100nF 20% 50V 0603
2866	2238 586 59812	100nF 20% 50V 0603
2867	2238 586 59812	100nF 20% 50V 0603
2868	2238 586 59812	100nF 20% 50V 0603
2869	2238 586 59812	100nF 20% 50V 0603
2870	2238 586 59812	100nF 20% 50V 0603
2871	2020 021 91557	100µF 20% 16V
2872	2238 586 59812	100nF 20% 50V 0603
2873	2238 586 59812	100nF 20% 50V 0603
2874	2238 586 59812	100nF 20% 50V 0603
2875	2238 586 59812	100nF 20% 50V 0603
2876	2238 586 59812	100nF 20% 50V 0603
2877	2238 586 59812	100nF 20% 50V 0603
2878	2238 586 59812	100nF 20% 50V 0603
2879	2238 586 59812	100nF 20% 50V 0603
2880	2238 586 59812	100nF 20% 50V 0603
2881	2238 586 59812	100nF 20% 50V 0603
2882	2238 586 59812	100nF 20% 50V 0603
2883	2238 586 59812	100nF 20% 50V 0603
2884	2238 586 59812	100nF 20% 50V 0603
2885	2238 586 59812	100nF 20% 50V 0603
2886	2238 586 59812	100nF 20% 50V 0603
2887	2238 586 59812	100nF 20% 50V 0603
2888	2238 586 59812	100nF 20% 50V 0603
2889	2020 021 91557	100µF 20% 16V
2890	2238 586 59812	100nF 20% 50V 0603
2891	2238 586 59812	100nF 20% 50V 0603
2892	2238 586 59812	100nF 20% 50V 0603
2893	2238 586 59812	100nF 20% 50V 0603
2894	2238 586 59812	100nF 20% 50V 0603
2895	2020 021 91854	10µF 20% 16V
2896	2020 021 91557	100µF 20% 16V
2898	2020 021 91854	10µF 20% 16V
2899	2238 586 59812	100nF 20% 50V 0603
2908	2238 586 59812	100nF 20% 50V 0603
2909	2238 586 59812	100nF 20% 50V 0603
2910	2238 586 59812	100nF 20% 50V 0603
2911	2238 586 59812	100nF 20% 50V 0603
2912	3198 017 44740	470nF 10V 0603
2917	2238 586 59812	100nF 20% 50V 0603
2918	4822 126 13879	220nF +80-20% 16V
2919	2020 021 91557	100µF 20% 16V
2920	2238 586 59812	100nF 20% 50V 0603
2921	2238 586 59812	100nF 20% 50V 0603
2924	2238 586 59812	100nF 20% 50V 0603
2930	4822 117 13605	Jumper 0402
2932	4822 117 13605	Jumper 0402
2933	4822 117 13605	Jumper 0402

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3001	4822 051 30472	4.7Ω 5% 0.062W
3002	4822 051 30472	4.7Ω 5% 0.062W

3003	4822 117 13525	24kΩ 1% 0.62W 0603
3006	4822 051 30471	47Ω 5% 0.062W
3007	3198 031 14710	4 x 470Ω 5% 1206
3008	4822 117 13526	150Ω 5% 0.63W
3009	2322 702 60829	82Ω 5% 0603
3011	4822 051 30471	47Ω 5% 0.062W
3012	3198 031 11010	4 x 100Ω 5% 1206
3013	4822 051 30103	10kΩ 5% 0.062W
3014	4822 051 30682	6.8Ω 5% 0.062W
3015	4822 051 30474	470kΩ 5% 0.062W
3016	4822 051 30152	1.5Ω 5% 0.062W
3017	4822 051 30472	4.7Ω 5% 0.062W
3018	4822 051 30103	10kΩ 5% 0.062W
3019	4822 051 30472	4.7Ω 5% 0.062W
3020	4822 051 30103	10kΩ 5% 0.062W
3021	4822 051 30103	10kΩ 5% 0.062W
3024	4822 051 30273	27kΩ 5% 0.062W
3025	4822 051 30221	220Ω 5% 0.062W
3026	4822 051 30472	4.7Ω 5% 0.062W
3027	4822 117 12925	47kΩ 1% 0.063W 0603
3029	4822 051 30103	10kΩ 5% 0.062W
3031	4822 051 30103	10kΩ 5% 0.062W
3033	4822 051 30103	10kΩ 5% 0.062W
3034	3198 031 11010	4 x 100Ω 5% 1206
3035	3198 031 11010	4 x 100Ω 5% 1206
3039	4822 051 30181	180Ω 5% 0.062W
3040	4822 051 30472	4.7Ω 5% 0.062W
3041	4822 051 30472	4.7Ω 5% 0.062W
3042	4822 051 30472	4.7Ω 5% 0.062W
3044	4822 051 30272	2.7kΩ 5% 0.062W
3048	3198 031 11010	4 x 100Ω 5% 1206
3049	3198 031 11010	4 x 100Ω 5% 1206
3050	3198 031 11010	4 x 100Ω 5% 1206
3051	3198 031 11010	4 x 100Ω 5% 1206
3052	3198 031 11010	4 x 100Ω 5% 1206
3053	4822 051 30101	100Ω 5% 0.062W
3054	3198 031 11010	4 x 100Ω 5% 1206
3055	3198 031 11010	4 x 100Ω 5% 1206
3056	3198 031 11010	4 x 100Ω 5% 1206
3057	3198 031 11010	4 x 100Ω 5% 1206
3059	2322 704 66201	620Ω 1% 0603
3061	4822 051 30103	10kΩ 5% 0.062W
3062	4822 051 30103	10kΩ 5% 0.062W
3064	3198 031 11010	4 x 100Ω 5% 1206
3065	4822 051 30472	4.7Ω 5% 0.062W
3066	4822 117 12925	47kΩ 1% 0.063W 0603
3067	4822 051 30474	470kΩ 5% 0.062W
3068	4822 051 30272	2.7kΩ 5% 0.062W
3069	4822 051 30272	2.7kΩ 5% 0.062W
3073	3198 031 14710	4 x 470Ω 5% 1206
3074	3198 031 14710	4 x 470Ω 5% 1206
3076	3198 031 14710	4 x 470Ω 5% 1206
3078	3198 031 14710	4 x 470Ω 5% 1206
3079	4822 051 30472	4.7Ω 5% 0.062W
3080	4822 051 30472	4.7Ω 5% 0.062W
3081	4822 051 30008	Jumper 0603
3088	4822 051 30472	4.7Ω 5% 0.062W
3090	3198 031 14710	4 x 470Ω 5% 1206
3093	4822 051 30103	10kΩ 5% 0.062W
3094	4822 117 12925	47kΩ 1% 0.063W 0603
3095	4822 117 12925	47kΩ 1% 0.063W 0603
3096	4822 117 12925	47kΩ 1% 0.063W 0603
3097	4822 051 30008	Jumper 0603
3099	3198 031 14710	4 x 470Ω 5% 1206
3302	4822 051 30102	1kΩ 5% 0.062W
3304▲	2322 750 63908	3.9Ω 5% Fuse 1206
3306	4822 051 30221	220Ω 5% 0.062W
3307	4822 051 30183	18kΩ 5% 0.062W
3308	3198 021 52240	220kΩ 5% 0805
3308	4822 051 20474	470kΩ 5% 0.1W
3310	4822 051 30563	56kΩ 5% 0.062W
3311	4822 117 13632	100kΩ 1% 0603 0.62W
3312	4822 117 13632	100kΩ 1% 0603 0.62W
3313	4822 117 13632	100kΩ 1% 0603 0.62W
3314	4822 051 30103	10kΩ 5% 0.062W
3315	4822 051 30102	1kΩ 5% 0.062W
3316	4822 117 10834	47kΩ 1% 0.1W
3317	4822 051 30221	220Ω 5% 0.062W
3318	4822 051 30102	1kΩ 5% 0.062W
3319	4822 051 30221	220Ω 5% 0.062W
3320	4822 051 30101	100Ω 5% 0.062W
3321	4822 051 30101	100Ω 5% 0.062W
3322	4822 051 10102	1kΩ 2% 0.25W
3324	4822 051 30472	4.7Ω 5% 0.062W
3327	4822 117 13632	100kΩ 1% 0603 0.62W
3328	4822 051 30393	39kΩ 5% 0.062W
3329▲	4822 117 13568	6.8Ω 5% 1206
3330	4822 051 30102	1kΩ 5% 0.062W
3331	4822 051 30102	1kΩ 5% 0.062W
3332	4822 051 30102	1kΩ 5% 0.062W
3333	4822 051 30102	1kΩ 5% 0.062W
3334	4822 051 30102	1kΩ 5% 0.062W
3335	4822 051 30102	1kΩ 5% 0.062W
3336	4822 051 30102	1kΩ 5% 0.062W
3337	4822 051 30681	680Ω 5% 0.062W
3338	4822 051 30479	47Ω 5% 0.062W
3340	4822 051 30101	100Ω 5% 0.062W
3341	4822 051 30101	100Ω 5% 0.062W
3342	4822 051 30101	100Ω 5% 0.062W
3343	4822 051 20683	68kΩ 5% 0.1W
3344	4822 051 30222	2.2kΩ 5% 0.062W
3345	4822 051 30103	10kΩ 5% 0.062W
3346	4822 051 30333	33kΩ 5% 0.062W
3347	4822 051 30223	22kΩ 5% 0.062W
3348	4822 051 30222	2.2kΩ 5% 0.062W
3349	4822 051 30472	4.7Ω 5% 0.062W
3355	4822 051 30333	33kΩ 5% 0.062W
3356	4822 051 30681	680Ω 5% 0.062W
3357	4822 051 30479	47Ω 5% 0.062W
3360	4822 117 13632	100kΩ 1% 0603 0.62W
3362	4822 051 30684	680kΩ 5% 0.062W
3363	4822 051 30102	1kΩ 5% 0.062W
3364	4822 051 30103	10kΩ 5% 0.062W
3365	4822 051 30103	10kΩ 5% 0.062W
3366	4822 051 30221	220Ω 5% 0.062W
3367	4822 051 30221	220Ω 5% 0.062W
3368	3198 021 32250	2.2MΩ 5% 0603
3370	4822 051 30101	100Ω 5% 0.062W
3371	4822 051 30479	47Ω 5% 0.062W
3372	4822 051 30471	47Ω 5% 0.062W
3376	4822 051 30101	100Ω 5% 0.062W
3377	4822 051 30101	100Ω 5% 0.062W
3378	4822 051 30153	15kΩ 5% 0.062W
3380	4822 051 30101	100Ω 5% 0.062W
3382	4822 051 30391	390Ω 5% 0.062W
3382	4822 051 30471	47Ω 5% 0.062W
3383	4822 051 30681	680Ω 5% 0.062W
3384	4822 051 30479	47Ω 5% 0.062W
3385	4822 051 30471	47Ω 5% 0.062W
3386	4822 051 30223	22kΩ 5% 0.062W
3387	4822 051 30101	100Ω 5% 0.062W
3390	4822 051 30221	220Ω 5% 0.062W
3391	4822 051 30472	4.7Ω 5% 0.062W
3393	4822 117 13632	100kΩ 1% 0603 0.62W
3394	4822 051 30472	4.7Ω 5% 0.062W
3395	4822 051 30101	100Ω 5% 0.062W
3396	4822 051 30221	220Ω 5% 0.062W
3397	4822 051 30221	220Ω 5% 0.062W
3398	4822 051 30221	220Ω 5% 0.062W
3400▲	4822 117 11152	4.7Ω 5%
3402▲	2322 750 63908	3.9Ω 5% Fuse 1206
3403	4822 051 30101	100Ω 5% 0.062W
3404	4822 051 30561	560Ω 5% 0.062W
3405	4822 051 30102	1kΩ 5% 0.062W
3407	4822 051 30562	5.6kΩ 5% 0.063W 0603
3408	4822 051 30101	100Ω 5% 0.062W
3409	4822 051 30472	4.7Ω 5% 0.062W
3410	4822 051 30472	4.7Ω 5% 0.062W
3412	4822 051 30102	1kΩ 5% 0.062W
3413	4822 051 30271	270Ω 5% 0.062W
3415	4822 051 30103	10kΩ 5% 0.062W
3417	4822 051 30562	5.6kΩ 5% 0.063W 0603
3418	4822 051 30391	390Ω 5% 0.062W
3419	2322 702 60829	82Ω 5% 0603
3419	4822 051 30479	47Ω 5% 0.062W
3421	4822 051 30562	5.6kΩ 5% 0.063W 0603
3422	4822 051 30102	1kΩ 5% 0.062W
3423	4822 051 30562	5.6kΩ 5% 0.063W 0603
3433	4822 051 30392	3.9Ω 5% 0.063W 0603
3434	4822 051 30472	4.7Ω 5% 0.062W
3436	4822 051 30271	270Ω 5% 0.062W
3437	4822 051 30102	1kΩ 5% 0.062W
3437	4822 051 30471	47Ω 5% 0.062W
3439	4822 051 30471	47Ω 5% 0.062W
3439	4822 051 30561	560Ω 5% 0.062W
3441	4822 051 30223	22kΩ 5% 0.062W
3444	4822 051 30684	680kΩ 5% 0.062W
3445	4822 051 30008	Jumper 0603
3446	4822 051 30101	100Ω 5% 0.062W
3447	4822 051 30393	39kΩ 5% 0.062W
3448	4822 051 30103	10kΩ 5% 0.062W
3449	4822 051 30222	2.2kΩ 5% 0.062W
3463	4822 051 30183	18kΩ 5% 0.062W
3467	4822 051 30103	10kΩ 5% 0.062W
3470	4822 051 30333	33kΩ 5% 0.062W
3471	4822 117 13632	100kΩ 1% 0603 0.62W
3472	4822 051 30223	22kΩ 5% 0.062W
3473	4822 051 30008	Jumper 0603
3500	4822 051 30153	15kΩ 5% 0.062W
3501	2422 549 43769	Bead 30Ω at 100MHz
3504	4822 051 30123	12kΩ 5% 0.1W
3505	4822 051 30153	15kΩ 5% 0.062W
3506	2422 549 43769	Bead 30Ω at 100MHz
3509	4822 051 30123	12kΩ 5% 0.1W
3510	4822 117 12925	47kΩ 1% 0.063W 0603
3511	4822 117 13632	100kΩ 1% 0603 0.62W
3512	4822 051 30154	150kΩ 5% 0.062W
3513	4822 117 12889	270kΩ 1% 0.063W 0603
3514	4822 117 12925	47kΩ 1% 0.063W 0603
3515	4822 117 13632	100kΩ 1% 0603 0.62W
3516	4822 051 30392	3.9Ω 5% 0.063W 0603
3519	4822 051 30103	10kΩ 5% 0.062W
3520	4822 117 12925	47kΩ 1% 0.063W 0603
3521	4822 117 13632	100kΩ 1% 0603 0.62W
3522	4822 117 13632	100kΩ 1% 0603 0.62W
3523	4822 117 13632	100kΩ 1% 0603 0.62W
3524	4822 117 13632	100kΩ 1% 0603 0.62W
3525	4822 051 30684	680kΩ 5% 0.062W
3526	4822 051 30105	1MΩ 5% 0.062W
3527	4822 051 30101	100Ω 5% 0.062W
3528	4822 051 30103	10kΩ 5% 0.062W
3529	4822 051 30103	10kΩ 5% 0.062W
3530	4822 051 30103	10kΩ 5% 0.062W
3531	5322 117 13056	8.2kΩ 1% 0.063W 0603
3532	4822 051 30102	1kΩ 5% 0.062W
3533	4822 051 30103	10kΩ 5% 0.062W
3540	4822 051 30103	10kΩ 5% 0.062W
3544	4822 117 12925	47kΩ 1% 0.063W 0603
3545	4822 117 11817	1.2kΩ 1% 0.0625W
3546	4822 051 30102	1kΩ 5% 0.062W
3547	4822 117 12925	47kΩ 1% 0.063W 0603
3552	4822 051 30103	10kΩ 5% 0.062W
3553	4822 051 30223	22kΩ 5% 0.062W
3554	4822 051 30223	22kΩ 5% 0.062W
3555	4822 051 30223	22kΩ 5% 0.062W
3556	4822 051 30101	100Ω 5% 0.062W
3557	4822 051 30101	100Ω 5% 0.062W
3558	4822 051 30101	100Ω 5% 0.062W
3559	4822 051 30101	100Ω 5% 0.062W
3560	4822 051 30101	100Ω 5% 0.062W
3561	4822 051 30101	100Ω 5% 0.062W
3562	4822 051 30101	100Ω 5% 0.062W
3563	4822 051 30101	100Ω 5% 0.062W
3564	4822 051 30101	100Ω 5% 0.062W
3567	4822 051 30101	100Ω 5% 0.062W
3570	4822 051 30101	100Ω 5% 0.062W
3571	4822 051 30101	100Ω 5% 0.062W
3572	4822 051 30101	100Ω 5% 0.062W
3573	4822 051 30101	100Ω 5% 0.062W
3574	4822 051 30101	100Ω 5% 0.062W
3575	4822 051 30101	100Ω 5% 0.062W
3576	4822 051 30272	2.7kΩ 5% 0.062W
3577	4822 051 30101	100Ω 5% 0.062W
3578	4822 051 30103	10kΩ 5% 0.062W
3579	4822 051 30103	10kΩ 5% 0.062W
3601	4822 051 30223	22kΩ 5% 0.062W
3602	4822 051 30124	120kΩ 5% 0.062W
3603	4822 117 12891	220kΩ 1%
3604	4822 051 30124	120kΩ 5% 0.062W
3605	4822 117 12891	220kΩ 1%
3606	4822 051 30124	120kΩ 5% 0.062W
3607	4822 117 12891	220kΩ 1%
3608	4822 051 30124	120kΩ 5% 0.062W
3609	4822 117 12891	220kΩ 1%
3614	4822 117 12925	47kΩ 1% 0.063W 0603
3615	4822 117 12925	47kΩ 1% 0.063W 0603
3617	4822 051 30103	10kΩ 5% 0.062W
3618▲	4822 051 30103	10kΩ 5% 0.062W
3619	4822 051 30102	1kΩ 5% 0.062W
3624	4822 117 11817	1.2kΩ 1% 0.0625W
3626	4822 051 30154	150kΩ 5% 0.062W
3627	4822 051 30103	10kΩ 5% 0.062W
3628	4822 051 30223	22kΩ 5% 0.062W
3630	4822 051 30563	56kΩ 5% 0.062W
3634	4822 051 30121	120Ω 5% 0.062W
3636	4822 051 30271	270Ω 5% 0.062W
3637	4822 117 12864	82kΩ 5% 0.6W
3639	4822 051 30102	1kΩ 5% 0.062W
3640	4822 051 30101	100Ω 5% 0.062W
3641	4822 051 30101	100Ω 5% 0.062W
3642	4822 051 30101	100Ω 5% 0.062W
3643	4822 051 30101	100Ω 5% 0.062W
3644▲	4822 117 11152	4.7Ω 5%
3653	4822 051 30008	Jumper 0603
3654	4822 051 30008	Jumper 0603
3655	4822 051 30101	100Ω 5% 0.062W
3656	4822 051 30101	100Ω 5% 0.062W
3657	4822 051 30563	56kΩ 5% 0.062W
3658	4822 051 30154	150kΩ 5% 0.062W
3659	4822 051 30154	150kΩ 5% 0.062W
3663	4822 051 30181	180Ω 5% 0.062W
3664	4822 051 30102	1kΩ 5% 0.062W
3666	4822 051 30154	150kΩ 5% 0.062W
3667	4822 117 12864	82kΩ 5% 0.6W
3668	4822 051 30563	56kΩ 5% 0.062W
3669	4822 051 30271	270Ω 5% 0.062W
3670	4822 051 30102	1kΩ 5% 0.062W
3671	4822 117 11817	1.2kΩ 1% 0.0625W
3675	4822 051 30181	180Ω 5% 0.062W
3676	4822 117 13632	100kΩ 1% 0603 0.62W
3677	4822 117 13632	100kΩ 1% 0603 0.62W
3680	4822 117 11817	1.2kΩ 1% 0.0625W

3681	4822 051 30154	150kΩ 5% 0.062W
3682	4822 051 30102	1kΩ 5% 0.062W
3684	4822 051 30008	Jumper 0603
3685	4822 051 30008	Jumper 0603
3688	4822 051 30008	Jumper 0603
3689	4822 051 30008	Jumper 0603
3692	4822 051 30008	Jumper 0603
3693	4822 051 30008	Jumper 0603
3698	4822 117 11817	1.2kΩ 1% 0.0625W
3699	2322 702 60184	180kΩ 5% 0603
3700	9965 000 23109	22Ω 5% 0603
3701	4822 051 30102	1kΩ 5% 0.062W
3702	4822 051 30109	10Ω 5% 0.062W
3703	5322 117 13062	390Ω 1% 0.063W 0603
3704	2322 704 62701	270Ω 1% 0603
3705	2322 704 62701	270Ω 1% 0603
3709	4822 051 30101	100Ω 5% 0.062W
3710	4822 051 30101	100Ω 5% 0.062W
3712	4822 117 12925	47kΩ 1% 0.063W 0603
3713	4822 051 30181	180Ω 5% 0.062W
3714	4822 051 30181	180Ω 5% 0.062W
3715	4822 051 30181	180Ω 5% 0.062W
3716	4822 117 13632	100kΩ 1% 0603 0.62W
3717	4822 117 13632	100kΩ 1% 0603 0.62W
3718	4822 117 13632	100kΩ 1% 0603 0.62W
3719	4822 051 30332	3.3Ω 5% 0.062W
3720	4822 051 30103	10kΩ 5% 0.062W
3721	4822 117 13605	Jumper 0402
3722	3198 031 04720	4.7kΩ 5% 0402
3724	4822 051 30101	100Ω 5% 0.062W
3725	4822 051 30332	3.3Ω 5% 0.062W
3726	4822 117 11817	1.2kΩ 1% 0.0625W
3727	2322 704 61501	150Ω 1% 0603
3728	2322 704 61501	150Ω 1% 0603
3729	4822 051 30689	68Ω 5% 0.063W 0603
3730	4822 051 30561	560Ω 5% 0.062W
3731	5322 117 13056	8.2kΩ 1% 0.063W 0603
3732	3198 031 04730	47Ω 5% 0402
3733	4822 051 30103	10kΩ 5% 0.062W
3735	4822 051 30332	3.3Ω 5% 0.062W
3736	4822 051 30101	100Ω 5% 0.062W
3737	4822 051 30102	1kΩ 5% 0.062W
3738	4822 051 30102	1kΩ 5% 0.062W
3739	4822 117 13525	24kΩ 1% 0.62W 0603
3740	3198 031 04720	4.7kΩ 5% 0402
3742	4822 117 13601	22kΩ 5% 0402
3743	4822 051 30103	10kΩ 5% 0.062W
3744	4822 051 30222	2.2kΩ 5% 0.062W
3745	4822 051 30102	1kΩ 5% 0.062W
3746	5322 117 13042	3.9kΩ 1% 0.063W 0603
3747	4822 117 12925	47kΩ 1% 0.063W 0603
3748	4822 051 30124	120kΩ 5% 0.062W
3749	5322 117 13042	3.9kΩ 1% 0.063W 0603
3750	3198 031 03920	3.9kΩ 5% 0402
3751	3198 031 03320	3.3kΩ 5% 0402
3752	3198 021 31080	1Ω 5% 0603
3752	4822 117 12917	1Ω 5% 0.062W
3753	3198 021 31080	1Ω 5% 0603
3753	4822 117 12917	1Ω 5% 0.062W
3754	4822 051 30101	100Ω 5% 0.062W
3755	3198 031 04720	4.7kΩ 5% 0402
3756	4822 051 30103	10kΩ 5% 0.062W
3757	2322 704 61501	150Ω 1% 0603
3758	3198 031 04720	4.7kΩ 5% 0402
3759	4822 051 30221	220Ω 5% 0.062W
3762	3198 031 06890	68Ω 5% 0402
3763	3198 031 06890	68Ω 5% 0402
3764	3198 031 06890	68Ω 5% 0402
3766	4822 051 30102	1kΩ 5% 0.062W
3767	3198 031 06890	68Ω 5% 0402
3768	3198 031 06890	68Ω 5% 0402
3769	3198 031 06890	68Ω 5% 0402
3770	3198 031 06890	68Ω 5% 0402
3771	4822 051 30759	75Ω 5% 0.062W
3772	4822 051 30759	75Ω 5% 0.062W
3773	4822 051 30759	75Ω 5% 0.062W
3774	3198 031 06890	68Ω 5% 0402
3775	3198 031 06890	68Ω 5% 0402
3776	4822 051 30759	75Ω 5% 0.062W
3777	3198 031 06890	68Ω 5% 0402
3778	3198 031 04720	4.7kΩ 5% 0402
3779	3198 031 06890	68Ω 5% 0402
3780	3198 031 06890	68Ω 5% 0402
3781	3198 031 06890	68Ω 5% 0402
3782	4822 051 30102	1kΩ 5% 0.062W
3784	3198 031 06890	68Ω 5% 0402
3785	4822 051 30331	330Ω 5% 0.062W
3786	4822 051 30331	330Ω 5% 0.062W
3787	4822 051 30331	330Ω 5% 0.062W
3788	5322 117 13034	1.5kΩ 1% 0.063W 0603
3789	2322 704 61201	120Ω 1% 0.063W 0603
3790	2322 704 65601	560Ω 1% 0.063W 0603
3791	5322 117 13049	470Ω 1% 0.063W 0603
3792	2322 704 61501	150Ω 1% 0603
3793	4822 051 30222	2.2kΩ 5% 0.062W
3794	4822 051 30759	75Ω 5% 0.062W
3795	2322 704 61501	150Ω 1% 0603
3797	3198 031 04720	4.7kΩ 5% 0402
3800	4822 051 30759	75Ω 5% 0.062W
3801	2322 704 61501	150Ω 1% 0603
3802	2322 704 61501	150Ω 1% 0603
3803	3198 031 06890	68Ω 5% 0402
3804	3198 031 06890	68Ω 5% 0402
3805	5322 117 13062	390Ω 1% 0.063W 0603
3806	5322 117 13062	390Ω 1% 0.063W 0603
3807	2322 704 61201	120Ω 1% 0.063W 0603
3808	5322 117 13051	680Ω 1% 0.063W 0603
3809	2322 704 68209	82Ω 1% 0603
3810	5322 117 13062	390Ω 1% 0.063W 0603
3811	4822 051 30759	75Ω 5% 0.062W
3812	4822 051 30759	75Ω 5% 0.062W
3813	5322 117 13062	390Ω 1% 0.063W 0603
3814	4822 051 30759	75Ω 5% 0.062W
3815	4822 051 30759	75Ω 5% 0.062W
3816	5322 117 13062	390Ω 1% 0.063W 0603
3817	4822 051 30759	75Ω 5% 0.062W
3818	4822 051 30759	75Ω 5% 0.062W
3820	3198 031 04720	4.7kΩ 5% 0402
3822	2322 705 70279	27Ω 5% 0402
3823	3198 031 06890	68Ω 5% 0402
3824	3198 031 01090	10Ω 5% 0.01W 0402
3825	3198 031 01090	10Ω 5% 0.01W 0402
3826	4822 117 13605	Jumper 0402
3827	4822 117 13605	Jumper 0402
3830	3198 031 06890	68Ω 5% 0402
3831	3198 031 06890	68Ω 5% 0402
3832	3198 031 06890	68Ω 5% 0402
3833	3198 031 06890	68Ω 5% 0402
3834	3198 031 06890	68Ω 5% 0402
3835	3198 031 06890	68Ω 5% 0402
3836	3198 031 06890	68Ω 5% 0402
3837	3198 031 06890	68Ω 5% 0402
3838	3198 031 06890	68Ω 5% 0402
3839	3198 031 06890	68Ω 5% 0402
3840	3198 031 06890	68Ω 5% 0402
3841	3198 031 06890	68Ω 5% 0402
3842	3198 031 06890	68Ω 5% 0402
3843	3198 031 06890	68Ω 5% 0402
3844	3198 031 06890	68Ω 5% 0402
3845	3198 031 06890	68Ω 5% 0402
3846	4822 051 30472	4.7Ω 5% 0.062W
3853	4822 117 12925	47kΩ 1% 0.063W 0603
3855	3198 031 04720	4.7kΩ 5% 0402
3857	4822 117 13605	Jumper 0402
3860	4822 117 13605	Jumper 0402
3877	4822 117 13605	Jumper 0402
3878	4822 117 13605	Jumper 0402
3880	4822 117 12925	47kΩ 1% 0.063W 0603
3881	4822 117 12925	47kΩ 1% 0.063W 0603
3882	4822 117 12925	47kΩ 1% 0.063W 0603
3883	4822 117 12925	47kΩ 1% 0.063W 0603
3884	4822 117 12925	47kΩ 1% 0.063W 0603
3885	4822 051 30102	1kΩ 5% 0.062W
3886	4822 051 30102	1kΩ 5% 0.062W
3887	4822 051 30102	1kΩ 5% 0.062W
3888	4822 051 30102	1kΩ 5% 0.062W
3889	4822 051 30102	1kΩ 5% 0.062W
3890	4822 051 30102	1kΩ 5% 0.062W
3891	4822 051 30102	1kΩ 5% 0.062W
3892	4822 117 13605	Jumper 0402
3894	2322 704 61501	150Ω 1% 0603
3900	3198 031 06890	68Ω 5% 0402
3901	3198 031 06890	68Ω 5% 0402
3902	3198 031 06890	68Ω 5% 0402
3903	4822 117 13632	100kΩ 1% 0603 0.62W
3904	4822 117 13525	24kΩ 1% 0.62W 0603
3905	3198 031 04720	4.7kΩ 5% 0402
3911	2350 033 11689	4x 68Ω 5% Netw.
3912	2350 033 11689	4x 68Ω 5% Netw.
3913	2350 033 11229	4x 22Ω 5% Netw.
3914	2350 033 11229	4x 22Ω 5% Netw.
3915	2350 033 11229	4x 22Ω 5% Netw.
3916	2350 033 11229	4x 22Ω 5% Netw.
3917	2350 033 11229	4x 22Ω 5% Netw.
3918	3198 031 06890	68Ω 5% 0402
3919	3198 031 06890	68Ω 5% 0402
3920	3198 031 06890	68Ω 5% 0402
3921	3198 031 06890	68Ω 5% 0402
9014	4822 051 30008	Jumper 0603
9302	4822 051 30008	Jumper 0603
9303	4822 051 30008	Jumper 0603
9304	4822 051 30008	Jumper 0603
9322	4822 051 30008	Jumper 0603
9402	4822 051 30008	Jumper 0603
9403	4822 051 30008	Jumper 0603
9407	4822 051 30008	Jumper 0603
9410	4822 051 30008	Jumper 0603
9413	4822 051 30008	Jumper 0603
9415	4822 051 30008	Jumper 0603
9416	4822 051 30008	Jumper 0603
9417	4822 051 30008	Jumper 0603
9419	4822 051 30008	Jumper 0603
9520	4822 051 30008	Jumper 0603
9522	4822 051 30008	Jumper 0603
9603	4822 051 30008	Jumper 0603
9604	4822 051 30008	Jumper 0603
9607	4822 051 30008	Jumper 0603
9608	4822 051 30008	Jumper 0603
9609	4822 051 30008	Jumper 0603
9632	4822 051 30008	Jumper 0603
9652	4822 051 30008	Jumper 0603
9676	4822 051 30008	Jumper 0603
9677	4822 051 30008	Jumper 0603
9682	4822 051 30008	Jumper 0603
9683	4822 051 30008	Jumper 0603
9684	4822 051 30008	Jumper 0603
9685	4822 051 30008	Jumper 0603
9686	4822 051 30008	Jumper 0603
9687	4822 051 30008	Jumper 0603
9688	4822 051 30008	Jumper 0603
9689	4822 051 30008	Jumper 0603
9691	4822 051 30008	Jumper 0603
9692	4822 051 30008	Jumper 0603
9694	4822 051 30008	Jumper 0603
9702	4822 051 30008	Jumper 0603
9704	4822 117 13605	Jumper 0402
9706	4822 051 30008	Jumper 0603
9713	4822 117 13605	Jumper 0402
9714	4822 117 13605	Jumper 0402
9715	4822 117 13605	Jumper 0402
9716	4822 117 13605	Jumper 0402
9717	4822 117 13605	Jumper 0402
9718	4822 117 13605	Jumper 0402
9722	4822 117 13605	Jumper 0402
9723	4822 117 13605	Jumper 0402
9725	4822 051 30008	Jumper 0603
9727	4822 051 30008	Jumper 0603
9728	4822 051 30008	Jumper 0603
9731	4822 051 30008	Jumper 0603
9733	4822 051 30008	Jumper 0603
9735	4822 051 30008	Jumper 0603
9736	4822 051 30008	Jumper 0603
9737	4822 051 30008	Jumper 0603
9738	4822 051 30008	Jumper 0603
9739	4822 051 30008	Jumper 0603
9751	4822 117 13605	Jumper 0402
9752	4822 117 13605	Jumper 0402
9753	4822 117 13605	Jumper 0402
9754	4822 117 13605	Jumper 0402
9755	4822 117 13605	Jumper 0402
9756	4822 117 13605	Jumper 0402
9757	4822 117 13605	Jumper 0402
9758	4822 117 13605	Jumper 0402
9759	4822 117 13605	Jumper 0402
9760	4822 117 13605	Jumper 0402
9761	4822 117 13605	Jumper 0402
9762	4822 117 13605	Jumper 0402
9763	4822 117 13605	Jumper 0402
9765	4822 117 13605	Jumper 0402
9766	4822 117 13605	Jumper 0402
9773	4822 117 13605	Jumper 0402
9774	4822 117 13605	Jumper 0402
9775	4822 117 13605	Jumper 0402
9800	4822 117 13605	Jumper 0402
9801	4822 117 13605	Jumper 0402
9802	4822 117 13605	Jumper 0402
9803	4822 117 13605	Jumper 0402
9804	4822 117 13605	Jumper 0402
9805	4822 117 13605	Jumper 0402
9806	4822 117 13605	Jumper 0402
9808	4822 051 30008	Jumper 0603
9809	4822 051 30008	Jumper 0603
9811	4822 117 13605	Jumper 0402
9812	4822 117 13605	Jumper 0402
9815	4822 051 30008	Jumper 0603
9816	4822 051 30008	Jumper 0603
9817	4822 051 30008	Jumper 0603
9818	4822 051 30008	Jumper 0603
9901	4822 051 30101	100Ω 5% 0.062W
9902	4822 051 30101	100Ω 5% 0.062W
9903	4822 051 30008	Jumper 0603
9904	4822 051 30008	Jumper 0603
9905	4822 051 30008	Jumper 0603
9906	4822 051 30008	Jumper 0603
9907	4822 051 30008	Jumper 0603
9908	4822 051 30008	Jumper 0603
9909	4822 051 30101	100Ω 5% 0.062W
9919	4822 051 30008	Jumper 0603
9920	4822 051 30008	Jumper 0603
9921	4822 051 30008	Jumper 0603
9925	4822 051 30008	Jumper 0603
9927	4822 051 30008	Jumper 0603

9928	4822 051 30008	Jumper 0603
9929	4822 051 30008	Jumper 0603
9935	4822 051 30008	Jumper 0603
9937	4822 051 30008	Jumper 0603
9938	4822 051 30008	Jumper 0603
9939	4822 051 30008	Jumper 0603
9941	4822 051 30759	75Ω 5% 0.062W
9942	4822 051 30759	75Ω 5% 0.062W
9944	4822 051 30008	Jumper 0603
9945	4822 051 30008	Jumper 0603
9946	4822 051 30008	Jumper 0603
9947	4822 051 30008	Jumper 0603
9948	4822 051 30008	Jumper 0603
9949	4822 051 30008	Jumper 0603
9950	4822 051 30008	Jumper 0603
9951	4822 051 30008	Jumper 0603
9952	4822 051 30008	Jumper 0603
9953	4822 051 30008	Jumper 0603
9954	4822 051 30008	Jumper 0603

5301	4822 157 11876	6.8µH 10% 0805
5302	4822 157 11876	6.8µH 10% 0805
5303	4822 051 30008	Jumper 0603
5304	4822 051 30008	Jumper 0603
5305	4822 051 30008	Jumper 0603
5306	4822 051 30008	Jumper 0603
5307	4822 051 30008	Jumper 0603
5308	4822 051 30008	Jumper 0603
5402	3198 018 33980	3.9µH 10% 0805
5404	2422 535 95427	Bead 120Ω at 100MHz
5405	2422 535 95427	Bead 120Ω at 100MHz
5406	3198 018 33380	3.3µH 10% 0805
5406	4822 157 11876	6.8µH 10% 0805
5408	2422 549 00232	Trimmer 78MHz 5JKH
5408	2422 549 44983	Trimmer 78MHz 5CCB
5409	2422 549 42896	Bead 120Ω 100MHz
5411	3198 018 32770	0.27µH 10% 0805
5411	3198 018 33370	0.33µH 10% 0805
5415	4822 157 11716	Bead 30Ω at 100MHz
5416	4822 157 11716	Bead 30Ω at 100MHz
5417	4822 051 20008	Jumper 0805
5651	2422 549 43769	Bead 30Ω at 100MHz
5652	2422 549 43769	Bead 30Ω at 100MHz
5653	2422 549 43769	Bead 30Ω at 100MHz
5654	4822 157 11716	Bead 30Ω at 100MHz
5655	4822 157 11828	22µH 20% 0805
5656	4822 157 11876	6.8µH 10% 0805
5657	4822 051 30008	Jumper 0603
5658	4822 051 30008	Jumper 0603
5659	4822 051 30008	Jumper 0603
5660	4822 051 30008	Jumper 0603
5661	4822 051 30008	Jumper 0603
5662	4822 051 30008	Jumper 0603
5663	4822 051 30008	Jumper 0603
5666	4822 051 30008	Jumper 0603
5667	4822 051 30008	Jumper 0603
5668	4822 051 30008	Jumper 0603
5671	4822 157 11716	Bead 30Ω at 100MHz
5672	4822 157 11716	Bead 30Ω at 100MHz
5700	4822 157 10586	2.2µH 10% 0805
5701	3198 018 31580	1.5µH 10% 0805
5702	3198 018 31080	1µF 10% 0805
5703	4822 157 11506	Bead 120Ω at 100MHz
5705	4822 157 11876	6.8µH 10% 0805
5710	4822 157 11716	Bead 30Ω at 100MHz
5711	4822 157 11716	Bead 30Ω at 100MHz
5712	4822 157 11716	Bead 30Ω at 100MHz
5713	4822 157 11716	Bead 30Ω at 100MHz
5714	4822 157 11716	Bead 30Ω at 100MHz
5715	4822 157 10586	2.2µH 10% 0805
5716	4822 157 10586	2.2µH 10% 0805
5717	4822 157 10586	2.2µH 10% 0805
5718	4822 157 11716	Bead 30Ω at 100MHz
5720	4822 157 11716	Bead 30Ω at 100MHz
5722	4822 157 11716	Bead 30Ω at 100MHz
5750	4822 157 11716	Bead 30Ω at 100MHz
5751	4822 157 11716	Bead 30Ω at 100MHz
5752	4822 157 11716	Bead 30Ω at 100MHz
5753	4822 157 11716	Bead 30Ω at 100MHz
5754	4822 157 11716	Bead 30Ω at 100MHz
5755	4822 157 11716	Bead 30Ω at 100MHz
5756	4822 157 11716	Bead 30Ω at 100MHz
5757	4822 157 11716	Bead 30Ω at 100MHz
5758	4822 157 11716	Bead 30Ω at 100MHz
5759	4822 157 11716	Bead 30Ω at 100MHz
5760	4822 157 11716	Bead 30Ω at 100MHz
5761	4822 157 11716	Bead 30Ω at 100MHz
5762	4822 157 11716	Bead 30Ω at 100MHz
5763	4822 157 11716	Bead 30Ω at 100MHz
5764	4822 157 11716	Bead 30Ω at 100MHz
5765	4822 157 11716	Bead 30Ω at 100MHz
5767	4822 157 11716	Bead 30Ω at 100MHz
5768	4822 157 11716	Bead 30Ω at 100MHz
5769	4822 157 11716	Bead 30Ω at 100MHz
5770	4822 157 11716	Bead 30Ω at 100MHz
5771	4822 157 11716	Bead 30Ω at 100MHz
5772	4822 157 11716	Bead 30Ω at 100MHz
5775	4822 157 11716	Bead 30Ω at 100MHz
5800	4822 157 11506	Bead 120Ω at 100MHz
5900	4822 157 11716	Bead 30Ω at 100MHz
5901	4822 157 11716	Bead 30Ω at 100MHz
5902	4822 157 11716	Bead 30Ω at 100MHz
5903	4822 157 11716	Bead 30Ω at 100MHz
5904	4822 157 11716	Bead 30Ω at 100MHz
5910	2422 549 43062	Bead 600Ω at 100MHz
5911	2422 549 43062	Bead 600Ω at 100MHz
5912	2422 549 43062	Bead 600Ω at 100MHz
5913	2422 549 43062	Bead 600Ω at 100MHz
5914	2422 549 43062	Bead 600Ω at 100MHz
5915	2422 549 43062	Bead 600Ω at 100MHz
5917	2422 549 43062	Bead 600Ω at 100MHz
5918	2422 549 43062	Bead 600Ω at 100MHz
5919	2422 549 43062	Bead 600Ω at 100MHz
5920	2422 549 43062	Bead 600Ω at 100MHz

6001	4822 130 80622	BAT54
6002	4822 130 11397	BAS316
6003	4822 130 80622	BAT54
6004	4822 130 80622	BAT54
6005	4822 130 11422	PLVA2650A
6302	4822 130 11416	PDZ6.8B
6303	9322 150 18685	BZX384-C47
6304	4822 130 11397	BAS316
6306	3198 020 55680	BZX384-C5V6
6307	4822 130 80622	BAT54
6309	4822 130 11397	BAS316
6310	4822 130 11416	PDZ6.8B
6311	9340 548 67115	PDZ22B
6312	4822 130 11397	BAS316
6313	9340 548 67115	PDZ22B
6314	4822 130 11397	BAS316
6317	4822 130 11397	BAS316
6319	4822 130 11397	BAS316
6320	5322 130 34337	BAV99
6321	5322 130 34337	BAV99
6322	5322 130 34337	BAV99
6334	4822 130 11397	BAS316
6402	9340 552 30115	BA591
6404	9340 552 30115	BA591
6405	9340 552 30115	BA591
6652	4822 130 11551	UDZS10B
6657	4822 130 10838	UDZ3.3B
6658	4822 130 11397	BAS316
6719	9322 128 69685	S1D
6730	9322 128 69685	S1D
6731	9322 128 69685	S1D
6926	4822 130 11397	BAS316
6927	4822 130 11397	BAS316
6928	4822 130 11397	BAS316
6929	4822 130 11397	BAS316
6956	4822 130 11397	BAS316
6957	4822 130 11397	BAS316

7001	9352 684 81557	SAA5801H/015
7002	3198 010 42320	BC857BW
7003	3198 010 42310	BC847BW
7004	3198 010 42310	BC847BW
7005	9322 116 74668	LD1117D33
7006		For SW see item 7098
7007	9322 200 55668	IS41LV16100-50K
7008	3198 010 42310	BC847BW
7009	3198 010 42310	BC847BW
7010	3198 010 42320	BC857BW
7011	9322 156 81668	M24C32-WMN6TNKSA
7013	3198 010 42310	BC847BW
7014	3198 010 42320	BC857BW
7015	4822 209 73852	PMBT2369
7016	4822 209 73852	PMBT2369
7098	3104 317 47901	SW (check Prod. Survey)
7301	9352 681 65518	TDA9330N3
7303	3198 010 42320	BC857BW
7304	3198 010 42310	BC847BW
7305	3198 010 42310	BC847BW
7308	3198 010 42320	BC857BW
7309	3198 010 42320	BC857BW
7310	3198 010 42310	BC847BW
7311	3198 010 42320	BC857BW
7312	9340 310 30215	PDTC144ET
7318	3198 010 42320	BC857BW
7319	3198 010 42320	BC857BW
7320	3198 010 42310	BC847BW
7322	3198 010 42310	BC847BW
7323	9352 625 24518	TDA9321H/N2
7375	3198 010 42310	BC847BW
7401	3198 010 42310	BC847BW
7402	3198 010 42310	BC847BW
7404	3198 010 42310	BC847BW
7405	3198 010 42310	BC847BW
7406	3198 010 42310	BC847BW
7407	4822 130 60373	BC856B
7408	4822 130 60373	BC856B
7409	4822 130 60373	BC856B
7410	3198 010 42310	BC847BW
7411	5322 130 60159	BC846B
7651	9322 180 61702	MSP3411G-FH-B8-V3
7651	9322 183 28702	MSP3412G-FH-B3
7652	9351 869 40118	74HC4053PW
7653	9351 869 40118	74HC4053PW
7654	9340 425 20115	BC847BS
7656	9340 425 30115	BC847BPN
7663	9340 425 30115	BC847BPN
7664	9340 425 30115	BC847BPN
7665	9340 425 30115	BC847BPN
7666	9340 425 30115	BC847BPN
7667	3198 010 42310	BC847BW
7668	3198 010 42320	BC857BW
7669	9322 182 42668	LE80ABD
7670	3198 010 42310	BC847BW
7674	3198 010 42310	BC847BW
7675	9340 425 20115	BC847BS
7677	3198 010 42310	BC847BW
7678	9340 425 20115	BC847BS
7679	9340 425 20115	BC847BS
7681	9322 060 73668	MC33178DR2
7682	5322 130 60159	BC846B
7703	4822 209 73852	PMBT2369
7705	3198 010 42310	BC847BW
7706	3198 010 70400	74LVC1G14GW
7707	3198 010 42310	BC847BW
7708	3198 010 42310	BC847BW
7709	3198 010 42310	BC847BW
7710	3198 010 42310	BC847BW
7711	2422 486 80938	Socket 32p f PLCC
7711		For SW see item 7999
7712	9351 870 00118	74HC573PW
7713	9352 688 09557	SAA4978H/V204
7714	9965 000 02179	MS81V04160-25TB
7715	4822 209 73852	PMBT2369
7717	4822 209 73852	PMBT2369
7719	9322 206 19672	MSM56V16160F-7T3-FG
7720	9322 207 36702	T6TX5EF-0001
7725	4822 209 73852	PMBT2369
7728	5322 130 42718	BFS20
7729	5322 130 42718	BFS20
7730	5322 130 42718	BFS20
7731	5322 130 42718	BFS20
7732	5322 130 42718	BFS20
7733	5322 130 42718	BFS20
7752	9322 202 21671	T6TU5XB-0001
7753	9322 206 19672	MSM56V16160F-7T3-FG
7760	9352 730 86557	SAA4998H/V1
7770	4822 209 17398	LD1117DT33
7772	9322 170 14668	LF15ABDT
7773	9322 179 78668	LF18ABDT
7774	9322 142 88668	LF25CDT
7999	3104 317 47001	SW (check Prod. Survey)

DW Panel [C]

Various

0200	4822 267 10734	Connector 5p
0201	4822 267 10557	Connector 10p
0205	2422 025 16587	Connector 10p f foil
0207	4822 267 10565	Connector 4p
0236	4822 267 10735	Connector 3p
0237	4822 267 10676	RT-01T-1.0B (1P)
1327	4822 242 10694	Resonator 12MHz
1333	2422 549 44311	Filter TPWCC16B
1352	2422 549 44202	SAW 38MHz K6287K
1352	2422 549 44223	SAW 38MHz K7260M

2261	4822 124 40207	100µF 20% 25V
2262	5322 126 10511	1nF 5% 50V
2265	4822 124 40207	100µF 20% 25V
2269	4822 126 13751	47nF 10% 63V
2301	3198 017 41050	1µF 10V 0603
2302	5322 126 10184	820pF 5% 50V 3

2303	5322 126 10223	4.7nF 10% 63V
2306	5322 126 11583	10nF 10% 50V 0603
2309	4822 126 14585	100nF 10% 0805 50V
2312	4822 122 33177	10nF 20% 50V
2313	4822 126 14585	100nF 10% 0805 50V
2314	4822 126 14585	100nF 10% 0805 50V
2316	2238 916 15641	22nF 10% 25V 0603
2317	4822 126 13879	220nF +80-20% 16V
2319	2238 586 59812	100nF 20% 50V 0603
2321	5322 126 10465	3.9nF 10% 50V
2322	4822 124 40248	10µF 20% 63V
2324	4822 126 14585	100nF 10% 0805 50V
2327	2222 867 15339	33pF 5% 50V 0603
2328	2222 867 15339	33pF 5% 50V 0603
2331	4822 124 22652	2.2µF 20% 50V
2332	4822 126 14076	220nF +80/-20% 25V
2333	2238 586 59812	100nF 20% 50V 0603
2334	5322 122 32654	22nF 10% 63V 0805
2335	4822 126 14043	1µF +80-20% 16V 0805
2336	5322 126 10184	820pF 5% 50V 3
2338	4822 122 33127	2.2nF 10% 63V
2342	4822 126 13692	47pF 1% 63V
2345	4822 126 13692	47pF 1% 63V
2348	4822 126 11785	47pF 5% 50V 0603
2349	4822 122 33177	10nF 20% 50V
2350	4822 124 40248	10µF 20% 63V
2351	4822 122 33177	10nF 20% 50V
2354	4822 126 13482	470nF +80%/-20% 16V
2355	3198 017 41050	1µF 10V 0603
2356	4822 126 13482	470nF +80%/-20% 16V
2357	2238 861 18109	10pF 1% 50V 0805 NP0
2372	5322 126 10223	4.7nF 10% 63V
2373	4822 124 21913	1µF 20% 63V
2374	5322 122 32654	22nF 10% 63V 0805
2375	5322 126 10511	1nF 5% 50V
2376	5322 126 10511	1nF 5% 50V
2377	5322 126 10511	1nF 5% 50V
2380	4822 124 40248	10µF 20% 63V
2385	4822 126 13881	470pF 5% 50V
2386	4822 126 13881	470pF 5% 50V
2390	4822 126 11785	47pF 5% 50V 0603
2391	2020 552 94427	100pF 5% 50V
2392	4822 126 14225	56pF 5% 50V 0603
2393	2020 552 94427	100pF 5% 50V
2401	3198 017 41050	1µF 10V 0603
2402	3198 017 41050	1µF 10V 0603
2403	3198 017 41050	1µF 10V 0603
2404	3198 017 41050	1µF 10V 0603
2405	3198 017 41050	1µF 10V 0603
2411	4822 124 40248	10µF 20% 63V
2412	4822 126 13879	220nF +80-20% 16V
2415	4822 126 13879	220nF +80-20% 16V
2431	2238 586 59812	100nF 20% 50V 0603
2432	2238 586 59812	100nF 20% 50V 0603
2434	2238 586 59812	100nF 20% 50V 0603
2436	4822 124 40207	100µF 20% 25V
2438	3198 017 34730	47nF 16V 0603
2439	3198 017 34730	47nF 16V 0603
2440	3198 017 34730	47nF 16V 0603
2811	2238 586 59812	100nF 20% 50V 0603
2812	2238 586 59812	100nF 20% 50V 0603
2813	3198 016 31510	150pF 10% 50V 0603
2814	4822 126 14585	100nF 10% 0805 50V
2816	4822 124 40248	10µF 20% 63V
2817	4822 126 14585	100nF 10% 0805 50V
2818	4822 126 14585	100nF 10% 0805 50V
2819	4822 126 14585	100nF 10% 0805 50V
2821	4822 124 40248	10µF 20% 63V
2822	4822 126 14585	100nF 10% 0805 50V
2823	2238 586 59812	100nF 20% 50V 0603
2824	2238 586 59812	100nF 20% 50V 0603
2825	5322 122 33538	150pF 2% 63V NP0
2826	4822 126 14585	100nF 10% 0805 50V
2827	4822 124 40207	100µF 20% 25V
2828	2238 586 59812	100nF 20% 50V 0603
2829	4822 126 14585	100nF 10% 0805 50V
2831	4822 126 14043	1µF +80-20% 16V 0805
2832	4822 126 14043	1µF +80-20% 16V 0805
2833	2238 586 59812	100nF 20% 50V 0603
2834	4822 124 40248	10µF 20% 63V
2836	2238 586 59812	100nF 20% 50V 0603
2837	4822 126 14585	100nF 10% 0805 50V
2838	4822 124 11912	220µF 20% 6.3V
2839	4822 126 14585	100nF 10% 0805 50V
2841	4822 124 40248	10µF 20% 63V
2842	3198 016 31510	150pF 10% 50V 0603
2843	2238 586 59812	100nF 20% 50V 0603
2844	2238 586 59812	100nF 20% 50V 0603
2846	4822 126 14585	100nF 10% 0805 50V
2847	5322 122 33538	150pF 2% 63V NP0
2848	4822 126 14585	100nF 10% 0805 50V
2849	4822 126 14585	100nF 10% 0805 50V
2851	4822 124 40248	10µF 20% 63V
2852	4822 126 14585	100nF 10% 0805 50V
2853	4822 124 40248	10µF 20% 63V
2854	4822 126 14585	100nF 10% 0805 50V
2856	5322 122 33538	150pF 2% 63V NP0
2857	3198 016 31510	150pF 10% 50V 0603
2861	4822 124 40248	10µF 20% 63V
2862	2238 586 59812	100nF 20% 50V 0603
2863	4822 124 81151	22µF 50V
2864	2238 586 59812	100nF 20% 50V 0603
2866	2238 586 59812	100nF 20% 50V 0603
2867	3198 017 41050	1µF 10V 0603
2868	2238 586 59812	100nF 20% 50V 0603
2869	4822 124 40207	100µF 20% 25V
2871	3198 017 41050	1µF 10V 0603
2872	2238 586 59812	100nF 20% 50V 0603
2873	2238 586 59812	100nF 20% 50V 0603
2874	4822 051 30008	Jumper 0603
2876	4822 051 30008	Jumper 0603
2877	4822 051 30008	Jumper 0603
2878	4822 126 14585	100nF 10% 0805 50V
2879	2238 586 59812	100nF 20% 50V 0603
2891	5322 122 31647	1nF 10% 63V
2892	4822 126 11785	47pF 5% 50V 0603
2893	4822 126 11785	47pF 5% 50V 0603
2894	4822 126 11785	47pF 5% 50V 0603
2895	4822 126 13692	47pF 1% 63V
2896	4822 126 13692	47pF 1% 63V
2897	4822 126 11785	47pF 5% 50V 0603
2898	4822 124 40207	100µF 20% 25V
2899	4822 124 40207	100µF 20% 25V

-WW-

3263	4822 117 11449	2.2kΩ 5% 0.1W 0805
3264	4822 117 10833	10kΩ 1% 0.1W
3267	4822 051 20109	10Ω 5% 0.1W
3268	4822 051 20109	10Ω 5% 0.1W
3270	4822 051 20008	Jumper 0805
3301	4822 051 30102	1kΩ 5% 0.062W
3305	4822 117 12955	2.7kΩ 1% 0.1W 0805
3311	4822 051 20273	27kΩ 5% 0.1W
3312	4822 117 10833	10kΩ 1% 0.1W
3315	4822 117 12708	39kΩ 1% 0.1W 0805
3316	4822 051 30681	680Ω 5% 0.062W
3318	4822 051 30101	100Ω 5% 0.062W
3321	4822 051 30103	10kΩ 5% 0.062W
3322	5322 117 13056	8.2kΩ 1% 0.063W 0603
3324	4822 051 20391	390Ω 5% 0.1W
3326	5322 117 12487	1kΩ 1% 0.125W
3327	4822 051 30561	560Ω 5% 0.062W
3329	4822 117 11373	100Ω 1% 0805
3330	4822 117 11373	100Ω 1% 0805
3333	4822 051 30681	680Ω 5% 0.062W
3334	4822 051 30471	47Ω 5% 0.062W
3335	4822 051 20121	120Ω 5% 0.1W
3338	4822 051 20008	Jumper 0805
3339	4822 117 10833	10kΩ 1% 0.1W
3340	4822 051 30222	2.2kΩ 5% 0.062W
3341	4822 051 20479	47kΩ 5% 0.1W
3344	4822 051 20479	47kΩ 5% 0.1W
3346	4822 051 30561	560Ω 5% 0.062W
3348	4822 051 30008	Jumper 0603
3352	4822 051 30222	2.2kΩ 5% 0.062W
3353	4822 051 30682	6.8Ω 5% 0.062W
3354	4822 051 30222	2.2kΩ 5% 0.062W
3355	4822 051 30273	27kΩ 5% 0.062W
3356	4822 051 30183	18kΩ 5% 0.062W
3370	4822 117 11373	100Ω 1% 0805
3371	4822 116 83933	15kΩ 1% 0.1W
3372	4822 051 30008	Jumper 0603
3374	4822 051 30472	4.7Ω 5% 0.062W
3381	4822 117 11373	100Ω 1% 0805
3382	4822 117 11373	100Ω 1% 0805
3383	4822 117 11373	100Ω 1% 0805
3384	4822 051 30103	10kΩ 5% 0.062W
3385	4822 051 30472	4.7Ω 5% 0.062W
3386	4822 051 30103	10kΩ 5% 0.062W
3387	4822 051 30393	39kΩ 5% 0.062W
3388	4822 051 30103	10kΩ 5% 0.062W
3389	4822 051 30472	4.7Ω 5% 0.062W
3390	4822 051 30471	47Ω 5% 0.062W
3401	4822 051 30101	100Ω 5% 0.062W
3402	4822 051 30101	100Ω 5% 0.062W
3403	4822 117 11373	100Ω 1% 0805
3404	4822 051 30101	100Ω 5% 0.062W
3405	4822 117 11373	100Ω 1% 0805
3411	4822 117 12925	47kΩ 1% 0.063W 0603
3412	4822 117 12925	47kΩ 1% 0.063W 0603
3413	4822 051 30102	1kΩ 5% 0.062W
3414	4822 117 12925	47kΩ 1% 0.063W 0603
3415	4822 117 12925	47kΩ 1% 0.063W 0603
3416	4822 051 30102	1kΩ 5% 0.062W
3431	4822 051 30101	100Ω 5% 0.062W
3432	4822 051 30101	100Ω 5% 0.062W
3437	4822 051 20472	4.7kΩ 5% 0.1W
3438	4822 051 30471	47Ω 5% 0.062W
3439	4822 051 20008	Jumper 0805
3453	4822 051 30472	4.7Ω 5% 0.062W
3456	4822 051 30472	4.7Ω 5% 0.062W
3457	4822 051 30472	4.7Ω 5% 0.062W
3460	4822 051 30472	4.7Ω 5% 0.062W
3462	4822 052 10228	2.2Ω 5% 0.33W
3801	4822 117 11503	220Ω 1% 0.1W
3802	4822 117 10361	680Ω 1% 0.1W
3803	4822 117 11503	220Ω 1% 0.1W
3804	4822 051 30681	680Ω 5% 0.062W
3805	4822 051 30221	220Ω 5% 0.062W
3806	4822 051 30681	680Ω 5% 0.062W
3807	4822 051 30221	220Ω 5% 0.062W
3808	4822 117 10361	680Ω 1% 0.1W
3809	4822 051 30221	220Ω 5% 0.062W
3810	4822 051 30681	680Ω 5% 0.062W
3811	4822 117 11503	220Ω 1% 0.1W
3812	4822 051 30479	47Ω 5% 0.062W
3813	4822 051 30151	150Ω 5% 0.062W
3814	4822 051 30223	22kΩ 5% 0.062W
3816	4822 051 30479	47Ω 5% 0.062W
3817	4822 051 30151	150Ω 5% 0.062W
3818	4822 051 30479	47Ω 5% 0.062W
3821	4822 051 30151	150Ω 5% 0.062W
3822	4822 051 30472	4.7Ω 5% 0.062W
3823	4822 117 10361	680Ω 1% 0.1W
3824	4822 051 30008	Jumper 0603
3825	4822 051 30221	220Ω 5% 0.062W
3826	4822 051 30332	3.3Ω 5% 0.062W
3827	4822 117 12903	1.8kΩ 1% 0.063W 0603
3828	4822 051 30221	220Ω 5% 0.062W
3829	4822 051 30221	220Ω 5% 0.062W
3831	4822 051 30221	220Ω 5% 0.062W
3832	4822 051 30393	39kΩ 5% 0.062W
3833	4822 051 30332	3.3Ω 5% 0.062W
3834	4822 117 12903	1.8kΩ 1% 0.063W 0603
3836	4822 051 30332	3.3Ω 5% 0.062W
3837	4822 117 12903	1.8kΩ 1% 0.063W 0603
3838	4822 051 30393	39kΩ 5% 0.062W
3839	4822 117 11503	220Ω 1% 0.1W
3846	4822 117 11503	220Ω 1% 0.1W
3854	4822 051 30101	100Ω 5% 0.062W
3856	4822 051 20562	5.6kΩ 5% 0.1W 0805
3857	4822 117 10833	10kΩ 1% 0.1W
3858	4822 051 20562	5.6kΩ 5% 0.1W 0805
3862	4822 052 10108	1Ω 5% 0.33W
3863	4822 052 10108	1Ω 5% 0.33W
3865	4822 051 30332	3.3Ω 5% 0.062W
3866	4822 051 30102	1kΩ 5% 0.062W
3868	4822 117 12903	1.8kΩ 1% 0.063W 0603
3869	4822 051 30332	3.3Ω 5% 0.062W
3871	4822 051 30222	2.2kΩ 5% 0.062W
3872	4822 051 30471	47Ω 5% 0.062W
3873	4822 051 30152	1.5Ω 5% 0.062W
3874	4822 051 30152	1.5Ω 5% 0.062W
3876	4822 051 20472	4.7kΩ 5% 0.1W
3878	4822 051 30102	1kΩ 5% 0.062W
3879	4822 051 30221	220Ω 5% 0.062W
3881	4822 051 30008	Jumper 0603
3884	4822 117 10361	680Ω 1% 0.1W
3886	4822 051 30008	Jumper 0603
3887	4822 051 30008	Jumper 0603
3888	4822 051 30008	Jumper 0603
3889	4822 051 30339	33Ω 5% 0.062W
3890	4822 051 30339	33Ω 5% 0.062W
3891	4822 051 30339	33Ω 5% 0.062W
3892	4822 051 20472	4.7kΩ 5% 0.1W
3893	4822 051 30152	1.5Ω 5% 0.062W
3894	4822 051 30222	2.2kΩ 5% 0.062W
3895	4822 051 30471	47Ω 5% 0.062W
3896	4822 051 30152	1.5Ω 5% 0.062W
3897	4822 051 30221	220Ω 5% 0.062W
3898	4822 051 30102	1kΩ 5% 0.062W
4304	4822 051 30008	Jumper 0603
4305	4822 051 20008	Jumper 0805
4310	4822 051 30008	Jumper 0603
4311	4822 051 30008	Jumper 0603
4312	4822 051 30008	Jumper 0603
4313	4822 051 20008	Jumper 0805
4314	4822 051 20008	Jumper 0805
4315	4822 051 20008	Jumper 0805
4434	4822 051 20008	Jumper 0805
4437	4822 051 20008	Jumper 0805
4438	4822 051 20008	Jumper 0805
4439	4822 051 30008	Jumper 0603
4440	4822 051 30008	Jumper 0603
4827	4822 051 30008	Jumper 0603
4828	4822 051 30008	Jumper 0603
4831	4822 051 30221	220Ω 5% 0.062W

5262	4822 157 11778	5.6µH 0805 10%
5309	4822 157 71334	0.68µH 5% 1008
5332	4822 157 71334	0.68µH 5% 1008
5333	4822 157 71334	0.68µH 5% 1008
5334	4822 157 71334	0.68µH 5% 1008
5349	4822 157 71694	0.82µH 10%
5350	3198 018 61590	15µF 5% 1008
5351	3198 018 61590	15µF 5% 1008
5352	4822 157 71334	0.68µH 5% 1008
5401	2422 535 94637	4.7µH 20% LHL08
5816	4822 157 11506	Bead 120Ω at 100MHz
5818	4822 157 11506	Bead 120Ω at 100MHz
5827	4822 157 11506	Bead 120Ω at 100MHz
5834	4822 157 11506	Bead 120Ω at 100MHz
5839	4822 157 11506	Bead 120Ω at 100MHz
5848	4822 157 11506	Bead 120Ω at 100MHz
5849	4822 157 11506	Bead 120Ω at 100MHz
5851	4822 157 11506	Bead 120Ω at 100MHz
5853	4822 157 11506	Bead 120Ω at 100MHz

6301	4822 130 11525	1SS356
6412	4822 130 11397	BAS316
6415	4822 130 11397	BAS316
6801	4822 130 11564	UDZ3.9B
6802	4822 130 11564	UDZ3.9B
6803	4822 130 11397	BAS316

7201	2422 542 90103	TEDE9X216A
7201	2422 542 90104	TEDE9X217A
7301	9352 638 73557	TDA8889H/N1
7305	3198 010 42310	BC847BW
7307	3198 010 42310	BC847BW
7331	3198 010 42320	BC857BW
7332	3198 010 42310	BC847BW
7385	3198 010 42310	BC847BW
7386	3198 010 42310	BC847BW
7401	5322 209 14481	HEF4053BT
7403	4822 209 17345	M62320FP
7411	3198 010 42310	BC847BW
7412	3198 010 42310	BC847BW
7438	3198 010 42310	BC847BW
7801	9352 639 83557	SAB9083H/N4
7802	9322 123 54687	LD1117V33
7803	9322 208 24668	SM MM1389XFBE
7804	9352 457 50115	74HC1G32GW
7805	3198 010 42310	BC847BW
7806	3198 010 42310	BC847BW
7807	3198 010 42310	BC847BW
7808	3198 010 42310	BC847BW
7809	3198 010 42310	BC847BW
7810	3198 010 42310	BC847BW
7824	3198 010 42310	BC847BW
7828	3198 010 42310	BC847BW
7832	3198 010 42310	BC847BW
7871	3198 010 42310	BC847BW
7874	3198 010 42310	BC847BW
7876	3198 010 42320	BC857BW
7891	3198 010 42310	BC847BW
7892	3198 010 42310	BC847BW
7893	3198 010 42310	BC847BW
7894	3198 010 42320	BC857BW
7895	3198 010 42310	BC847BW

Mains Switch Panel [E]

Various

0201	2422 025 16268	Connector 2p m
0202	2422 025 16268	Connector 2p m
0241	2422 025 06354	Connector 9p m
1050	9322 155 82667	TSOP2236
1051	2422 128 02972	Switch power 2p 8/128A
8202	3104 311 02571	Cable 2p3/680/2p3 Bk
8946▲	3104 311 04981	Cable 9p/820/9p

2051	4822 124 41584	100µF 20% 10V
2070	4822 126 13879	220nF +80-20% 16V
2071	4822 124 40248	10µF 20% 63V

3050	4822 117 13577	330Ω 1% 1.25W 0805
3051	4822 051 30471	47Ω 5% 0.062W
3054	4822 051 20471	470Ω 5% 0.1W
3057	4822 053 21335	3.3MΩ 5% 0.5W
3066	4822 053 21335	3.3MΩ 5% 0.5W
3070	4822 051 30334	330kΩ 5% 0.062W
3071	4822 051 30334	330kΩ 5% 0.062W
3072	4822 051 30102	1kΩ 5% 0.062W
3073	4822 051 30103	10kΩ 5% 0.062W
3074	4822 051 30472	4.7Ω 5% 0.062W
3075	4822 051 30472	4.7Ω 5% 0.062W
3076	4822 051 30682	6.8Ω 5% 0.062W
3077	4822 051 30103	10kΩ 5% 0.062W
3078	4822 051 30102	1kΩ 5% 0.062W
3079	4822 051 30332	3.3Ω 5% 0.062W
3082	4822 051 30008	Jumper 0603
3998	4822 116 52213	180Ω 5% 0.5W
4000	4822 051 30008	Jumper 0603
4002	4822 051 30008	Jumper 0603
4007	4822 051 30008	Jumper 0603
4008	4822 051 30008	Jumper 0603
4009	4822 051 30008	Jumper 0603
4010	4822 051 30008	Jumper 0603
4011	4822 051 30008	Jumper 0603

6051	4822 209 72895	TLUV5320
6070	4822 130 11595	BPW46

7070	4822 209 70672	LM358N Selection

CRT Panel [F]

Various

1298▲	2422 500 80063	Socket CRT 10p f v
1298▲	2422 500 80078	Socket CRT 11p f v
1424	2422 025 11244	Connector 7p m
1434	4822 267 10973	Connector 1p
1483	2422 025 16382	Connector 3p m
1940▲	2422 025 12485	Connector 11p m
8483▲	3104 311 03111	Cable 3p/340/3p ferrite

2312	4822 126 14585	100nF 10% 0805 50V
2313	4822 124 12373	47µF 20% 250V
2318	2238 916 15641	22nF 10% 25V 0603
2320	2252 648 08032	10nF 20% 500V
2324	4822 121 70581	1.5nF 5% 2kV
2324	4822 121 70594	1nF 5% 2kV
2338	2222 365 45104	100nF 10% 250V
2339	2222 365 45104	100nF 10% 250V
2340	2222 365 45104	100nF 10% 250V
2341	2238 586 59812	100nF 20% 50V 0603
2342	4822 126 14241	330pF 0603 50V
2347	4822 124 80791	470µF 20% 16V
2348	5322 126 11583	10nF 10% 50V 0603
2358	4822 124 80791	470µF 20% 16V
2359	5322 126 11583	10nF 10% 50V 0603
2403	4822 124 41584	100µF 20% 10V
2404	4822 124 41584	100µF 20% 10V
2405	4822 122 31177	470pF 10% 500V
2410	2238 916 15641	22nF 10% 25V 0603
2411	2238 916 15641	22nF 10% 25V 0603
2420	2222 930 56627	2.2nF 10% 200V 0805
2428	3198 017 42230	22nF 50V 0603
2435	2020 557 90734	22nF 10% 250V
2436	2020 012 93596	22µF 20% 250V
2437	5322 126 11578	1nF 10% 50V 0603
2438	2222 930 56627	2.2nF 10% 200V 0805
2439	2020 557 90734	22nF 10% 250V
2501	2238 586 59812	100nF 20% 50V 0603
2503	2238 586 59812	100nF 20% 50V 0603
2505	2238 586 59812	100nF 20% 50V 0603
2510	4822 126 14585	100nF 10% 0805 50V
2511	4822 126 14585	100nF 10% 0805 50V

3301	4822 117 12517	5.6kΩ 5% 5W
3304▲	4822 052 10102	1kΩ 5% 0.33W
3305▲	4822 052 10108	1Ω 5% 0.33W
3310	4822 051 10102	1kΩ 2% 0.25W
3334	4822 050 11002	1kΩ 1% 0.4W
3338	3198 013 04710	470Ω 20% 0.5W
3339	3198 013 04710	470Ω 20% 0.5W
3340	3198 013 04710	470Ω 20% 0.5W
3341▲	4822 052 11479	47Ω 5% 0.5W
3345	4822 116 52191	33Ω 5% 0.5W
3347	3198 013 01520	1.5kΩ 20% 0.5W
3348▲	4822 117 13016	VDR 1mA/50V
3349	3198 013 01020	1kΩ 20% 0.5W
3350	4822 116 52175	100Ω 5% 0.5W
3351	4822 116 52175	100Ω 5% 0.5W
3352	4822 116 52175	100Ω 5% 0.5W
3356	4822 051 10102	1kΩ 2% 0.25W
3401	4822 053 11101	100Ω 5% 2W
3402	4822 116 52176	10Ω 5% 0.5W
3402	4822 116 83868	150Ω 5% 0.5W
3403▲	4822 052 10108	1Ω 5% 0.33W
3403▲	4822 052 11108	1Ω 5% 0.5W
3404▲	4822 052 10108	1Ω 5% 0.33W
3410	4822 051 30471	47Ω 5% 0.062W
3411	4822 117 11148	56kΩ 1% 0.1W
3412	4822 117 11148	56kΩ 1% 0.1W
3413	4822 051 30471	47Ω 5% 0.062W
3416	4822 051 20333	33kΩ 5% 0.1W
3417	4822 051 20333	33kΩ 5% 0.1W
3422	4822 051 30008	Jumper 0603
3448	4822 051 20333	33kΩ 5% 0.1W
3449	4822 117 11817	1.2kΩ 1% 0.0625W
3451	4822 051 30102	1kΩ 5% 0.062W
3453	4822 051 30103	10kΩ 5% 0.062W
3454	4822 051 20333	33kΩ 5% 0.1W
3456	4822 051 30332	3.3Ω 5% 0.062W
3458	9965 000 23109	22Ω 5% 0603
3459	4822 051 30101	100Ω 5% 0.062W
3460	9965 000 23109	22Ω 5% 0603
3465	4822 051 30008	Jumper 0603
3471	4822 117 11817	1.2kΩ 1% 0.0625W
3473	4822 116 80176	1Ω 5% 0.5W
3474	4822 051 30103	10kΩ 5% 0.062W
3478	4822 116 80176	1Ω 5% 0.5W
3488	4822 051 30008	Jumper 0603
3489	4822 051 30109	10Ω 5% 0.062W
3492	4822 051 30008	Jumper 0603
3501	4822 117 10361	680Ω 1% 0.1W
3502	4822 051 30331	330Ω 5% 0.062W
3506	4822 051 30471	47Ω 5% 0.062W
3507	4822 051 30008	Jumper 0603
3510	4822 116 52219	330Ω 5% 0.5W
3510	4822 116 52226	560Ω 5% 0.5W
3510	4822 116 52228	680Ω 5% 0.5W
3511	4822 117 10361	680Ω 1% 0.1W
3512	4822 051 30331	330Ω 5% 0.062W
3516	4822 117 13632	100kΩ 1% 0603 0.62W
3517	4822 051 30102	1kΩ 5% 0.062W
3518	4822 051 30008	Jumper 0603
3520	4822 116 52219	330Ω 5% 0.5W
3520	4822 116 52226	560Ω 5% 0.5W
3520	4822 116 52228	680Ω 5% 0.5W
3521	4822 117 10361	680Ω 1% 0.1W
3522	4822 051 30331	330Ω 5% 0.062W
3526	4822 051 30471	47Ω 5% 0.062W
3527	4822 051 30008	Jumper 0603
3530	4822 116 52219	330Ω 5% 0.5W
3530	4822 116 52226	560Ω 5% 0.5W
3530	4822 116 83881	390Ω 5% 0.5W
3532	4822 051 30471	47Ω 5% 0.062W
3533	4822 051 30008	Jumper 0603
3535	4822 051 20008	Jumper 0805
3536	4822 051 20008	Jumper 0805
3537	4822 051 20008	Jumper 0805
3539	4822 051 20561	560Ω 5% 0.1W
3541	4822 051 20561	560Ω 5% 0.1W
3543	4822 051 20561	560Ω 5% 0.1W
3544	4822 116 52285	470kΩ 5% 0.5W
3545	4822 051 30109	10Ω 5% 0.062W
3546	4822 051 30109	10Ω 5% 0.062W
3547	4822 051 30109	10Ω 5% 0.062W
3999	4822 051 30183	18kΩ 5% 0.062W
3999	4822 051 30222	2.2kΩ 5% 0.062W
3999	4822 051 30562	5.6kΩ 5% 0.063W 0603
9301	4822 051 30008	Jumper 0603
9302	4822 051 30008	Jumper 0603
9303	4822 051 30008	Jumper 0603
9305	4822 051 30008	Jumper 0603
9306	4822 051 30008	Jumper 0603
9307	4822 051 30008	Jumper 0603
9308	4822 051 30008	Jumper 0603
9314	4822 051 30008	Jumper 0603
9323	4822 051 30008	Jumper 0603
9324	4822 051 30008	Jumper 0603
9325	4822 051 30008	Jumper 0603
9401	4822 051 20008	Jumper 0805
9402	4822 051 30008	Jumper 0603
9403	4822 051 30008	Jumper 0603

9406	4822 051 20008	Jumper 0805
9408	4822 051 30008	Jumper 0603
9409	4822 051 30008	Jumper 0603
9428	4822 051 30008	Jumper 0603
9432	4822 051 30008	Jumper 0603
9437	4822 051 30008	Jumper 0603
9450	4822 051 20008	Jumper 0805
9452	4822 051 20008	Jumper 0805
9453	4822 051 20008	Jumper 0805

5300▲	3104 308 20571	Transf. S13974-03
5303	3198 036 90010	Wire 0.58mm
5304	4822 526 10704	Bead 50 Ω at 100MHz
5305	2422 549 42896	Bead 120Ω 100MHz
5308	4822 157 11867	5.6µH 5%
5309	4822 157 11867	5.6µH 5%
5310	4822 157 50964	100µH
5400	4822 157 11869	33µH 10%
5400	4822 157 11891	27UH 10% 9X9,5
5500	2722 122 00337	Del line 70ns SDL-5135
5501	2722 122 00337	Del line 70ns SDL-5135
5502	2722 122 00337	Del line 70ns SDL-5135

6301	9340 553 52115	BAS321
6302	9340 553 52115	BAS321
6303	9340 553 52115	BAS321
6305	9340 553 52115	BAS321
6306	9340 553 52115	BAS321
6307	9340 553 52115	BAS321
6401	4822 130 11397	BAS316
6402	4822 130 11397	BAS316
6403	4822 130 11397	BAS316
6404	4822 130 11397	BAS316
6405	3139 120 52021	BYV29X-500
6407	4822 130 11397	BAS316
6420	5322 130 34337	BAV99
6421	5322 130 34337	BAV99
6422	5322 130 34337	BAV99
6426	4822 130 30613	BAW62
6427	4822 130 30613	BAW62
6428	4822 130 30613	BAW62
6430	9340 548 61115	PDZ12B
6431	4822 130 11397	BAS316
6432	9340 553 52115	BAS321
6500	4822 130 11397	BAS316
6501	4822 130 11397	BAS316
6502	4822 130 11397	BAS316
6503	4822 130 41601	BYV95A

7330	9352 694 46112	TDA6118JF/N1
7340	9352 694 46112	TDA6118JF/N1
7350	9352 694 46112	TDA6118JF/N1
7414	5322 130 62804	BCP53
7415	5322 130 63033	BCP56
7422	5322 130 42718	BFS20
7427	5322 130 60159	BC846B
7428	4822 130 60373	BC856B
7429	5322 130 63033	BCP56
7430	5322 130 62804	BCP53
7500	5322 130 42718	BFS20
7501	5322 130 60159	BC846B
7503	5322 130 42718	BFS20
7504	5322 130 60159	BC846B
7506	5322 130 42718	BFS20
7507	5322 130 60159	BC846B

DC-shift Panel [G]

Various

1430	2422 086 10581	Fuse 400mA 65V
8317	3104 311 01421	Cable 2P3/220/2P3 Wh

2430	4822 122 31177	470pF 10% 500V
2431	4822 122 31177	470pF 10% 500V

5430	3128 138 38911	DC-shift coil CU15

6432	9340 317 00133	BYD33V
6433	9340 317 00133	BYD33V

DAF Panel/DAF + 2nd order S [I]

Various

1417	4822 265 20723	Connector 2p
1418	2422 025 16374	Connector 2p m
1419	4822 265 20723	Connector 2p
1491▲	3104 311 02452	Cable f-hook/340/1p
1492	4822 267 10735	Connector 3p
1497	4822 267 10973	Connector 1p
1693	4822 267 10676	RT-01T-1.0B (1P)
8418	3104 311 01951	Cable 2p3/560/2p4 Bk

2800	2222 375 90276	220pF 5% 2kV
2800	2222 375 90495	330pF 5% 2kV
2809	4822 124 40207	100µF 20% 25V
2812	4822 121 70435	10nF 5% 2kV
2813	4822 124 40248	10µF 20% 63V
2814	4822 121 70594	1nF 5% 2kV
2821	2222 479 90166	68pF 5% 400V
2822	4822 121 43856	4.7nF 5% 250V
2824	4822 124 40248	10µF 20% 63V
2825	4822 121 51319	1µF 10% 63V
2890	2222 375 90276	220pF 5% 2kV
2890	2222 375 90493	270pF 5% 2kV
2890	2222 375 90501	560pF 5% 2kV

3807▲	4822 052 10159	15Ω 5% 0.33W
3808▲	4822 052 10159	15Ω 5% 0.33W
3809▲	4822 052 10109	10Ω 5% 0.33W
3810▲	4822 053 21474	470k 5% 0.5W
3811	4822 053 20475	4.7MΩ 5% 0.25W
3812	4822 116 52264	27kΩ 5% 0.5W
3813	4822 116 52285	470kΩ 5% 0.5W
3814	4822 050 21004	100kΩ 1% 0.6W
3815	4822 050 11002	1kΩ 1% 0.4W
3816	4822 116 52269	3.3kΩ 5% 0.5W
3816	4822 116 83961	6.8kΩ 5%
3818	4822 051 20333	33kΩ 5% 0.1W
3820	4822 051 20008	Jumper 0805
3821	4822 051 20008	Jumper 0805
3822	4822 051 20008	Jumper 0805
3823	4822 117 11139	1.5kΩ 1% 0.1W
3824	4822 051 20333	33kΩ 5% 0.1W
3826	4822 117 11449	2.2kΩ 5% 0.1W 0805
3827	4822 051 20562	5.6kΩ 5% 0.1W 0805
3828	4822 117 10837	100kΩ 1% 0.1W
3830	4822 117 10834	47kΩ 1% 0.1W
3831	4822 051 20472	4.7kΩ 5% 0.1W
3832	4822 051 20182	1.8kΩ 5% 0.1W
3833	4822 051 20472	4.7kΩ 5% 0.1W
3898	4822 116 21239	VDR 1mA/612V
3899	4822 116 21239	VDR 1mA/612V
3998	4822 116 52213	180Ω 5% 0.5W
3998	4822 116 52243	1.5kΩ 5% 0.5W
3998	4822 116 52249	1.8Ω 5% 0.5W
9800	3198 036 90010	Wire 0.58mm
9805	3198 036 90010	Wire 0.58mm

5800	2422 531 02437	Transf. S21975-03
5800▲	4822 148 81242	Transf. CU20C2
5801	2422 531 02435	Transf. C948-02
5801	3128 138 38881	Transf. CU15 B
5801	8228 001 34391	Transf. CU15
5810	3128 138 40041	Transf. CU15B

6810	9335 214 80133	BYV97G
6810	9340 317 00133	BYD33V
6812	4822 130 34441	BZX79-B22

7810	9322 136 03687	STP3NB80FP
7810	9322 198 75687	STP3NK90ZFP
7818	5322 130 60159	BC846B
7822	5322 130 60159	BC846B
7823	4822 130 60373	BC856B

HD-Jack Panel [N]

Various

1104	2422 025 16759	Connector 5p m
1304	4822 265 41343	Connector 7p m
1680	4822 265 31067	Connector 7p m
1990	2422 025 16257	Connector Sub-D 15p m
1991	2422 026 04758	Socket CINCH 2p f
1992	2422 026 04758	Socket CINCH 2p f
1993	2422 026 05079	Socket CINCH 3p f
1994	2422 026 05079	Socket CINCH 3p f

2101	4822 124 23237	22µF 6.3V
2102	3198 017 44740	470nF 10V 0603
2103	4822 124 23237	22µF 6.3V
2104	3198 017 44740	470nF 10V 0603
2105	4822 124 23237	22µF 6.3V
2107	4822 124 23237	22µF 6.3V
2109	4822 124 23237	22µF 6.3V
2111	4822 124 23237	22µF 6.3V
2113	4822 126 13879	220nF +80-20% 16V
2115	4822 124 23237	22µF 6.3V
2117	4822 124 23237	22µF 6.3V
2119	4822 124 23237	22µF 6.3V
2121	4822 124 23237	22µF 6.3V
2122	5322 126 11583	10nF 10% 50V 0603
2123	5322 126 11583	10nF 10% 50V 0603
2125	4822 124 23237	22µF 6.3V
2127	4822 124 23237	22µF 6.3V
2130	4822 126 13879	220nF +80-20% 16V
2131	2020 552 94427	100pF 5% 50V
2132	2238 586 59812	100nF 20% 50V 0603
2133	2238 586 59812	100nF 20% 50V 0603
2134	4822 126 11785	47pF 5% 50V 0603
2135	4822 126 11785	47pF 5% 50V 0603
2147	5322 126 11583	10nF 10% 50V 0603
2148	5322 126 11583	10nF 10% 50V 0603
2152	5322 126 11583	10nF 10% 50V 0603
2153	5322 126 11583	10nF 10% 50V 0603
2400	2238 586 59812	100nF 20% 50V 0603
2403	2238 586 59812	100nF 20% 50V 0603
2404	2238 586 59812	100nF 20% 50V 0603
2405	4822 124 23237	22µF 6.3V
2406	4822 124 23237	22µF 6.3V
2407	4822 124 23237	22µF 6.3V
2408	4822 124 12095	100µF 20% 16V
2700	2238 586 59812	100nF 20% 50V 0603
2701	2238 586 59812	100nF 20% 50V 0603
2702	2238 586 59812	100nF 20% 50V 0603
2703	2238 586 59812	100nF 20% 50V 0603
2704	4822 126 13883	220pF 5% 50V
2705	4822 126 13883	220pF 5% 50V
2706	4822 126 13881	470pF 5% 50V
2707	2238 916 15641	22nF 10% 25V 0603
2713	2238 586 59812	100nF 20% 50V 0603
2714	5322 126 10511	1nF 5% 50V
2715	5322 126 10511	1nF 5% 50V
2716	2238 586 59812	100nF 20% 50V 0603
2717	5322 126 11578	1nF 10% 50V 0603
2900	4822 126 11785	47pF 5% 50V 0603
2901	4822 126 11785	47pF 5% 50V 0603
2904	2020 552 94427	100pF 5% 50V
2905	2020 552 94427	100pF 5% 50V
2906	4822 124 23237	22µF 6.3V
2907	4822 124 23237	22µF 6.3V
2908	4822 124 23237	22µF 6.3V
2910	4822 124 23237	22µF 6.3V
2911	4822 124 23237	22µF 6.3V
2912	4822 124 23237	22µF 6.3V
2913	4822 126 13879	220nF +80-20% 16V
2914	4822 124 23237	22µF 6.3V
2915	4822 126 14585	100nF 10% 0805 50V
2916	4822 126 14491	2.2µF 10V 0805
2917	4822 126 14491	2.2µF 10V 0805
2918	4822 126 14491	2.2µF 10V 0805
2919	4822 126 14491	2.2µF 10V 0805
2920	2020 552 94427	100pF 5% 50V
2921	2020 552 94427	100pF 5% 50V
2928	4822 124 23237	22µF 6.3V
2929	4822 124 23237	22µF 6.3V
2930	3198 017 33330	33nF 20% 16V 0603
2931	4822 126 14491	2.2µF 10V 0805
2932	3198 017 33330	33nF 20% 16V 0603
2933	4822 126 14491	2.2µF 10V 0805
2935	3198 017 33330	33nF 20% 16V 0603

2936	4822 126 14491	2.2µF 10V 0805
2937	2238 586 59812	100nF 20% 50V 0603
2938	4822 124 23237	22µF 6.3V
2939	4822 124 23237	22µF 6.3V

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3100	4822 051 30103	10kΩ 5% 0.062W
3101	4822 051 30102	1kΩ 5% 0.062W
3102	4822 051 30472	4.7Ω 5% 0.062W
3103	4822 051 30102	1kΩ 5% 0.062W
3104	4822 051 30222	2.2kΩ 5% 0.062W
3105	4822 051 30102	1kΩ 5% 0.062W
3106	4822 051 30103	10kΩ 5% 0.062W
3107	4822 051 30472	4.7Ω 5% 0.062W
3108	4822 117 13632	100kΩ 1% 0603 0.62W
3109	4822 117 13632	100kΩ 1% 0603 0.62W
3110	4822 117 13632	100kΩ 1% 0603 0.62W
3111	4822 051 30103	10kΩ 5% 0.062W
3112	4822 117 13632	100kΩ 1% 0603 0.62W
3113	4822 051 30109	10Ω 5% 0.062W
3114	4822 051 30109	10Ω 5% 0.062W
3115	4822 051 30109	10Ω 5% 0.062W
3116	4822 051 30109	10Ω 5% 0.062W
3117	4822 051 30109	10Ω 5% 0.062W
3118	4822 051 30109	10Ω 5% 0.062W
3120	4822 051 30109	10Ω 5% 0.062W
3121	4822 051 30109	10Ω 5% 0.062W
3122	4822 051 30109	10Ω 5% 0.062W
3124	4822 051 30102	1kΩ 5% 0.062W
3125	4822 051 30103	10kΩ 5% 0.062W
3126	4822 051 30103	10kΩ 5% 0.062W
3127	4822 051 30223	22kΩ 5% 0.062W
3129	4822 051 30102	1kΩ 5% 0.062W
3130	4822 051 30101	100Ω 5% 0.062W
3131	4822 051 30102	1kΩ 5% 0.062W
3132	4822 051 30101	100Ω 5% 0.062W
3133	4822 051 30102	1kΩ 5% 0.062W
3150	9965 000 23109	22Ω 5% 0603
3151	4822 051 30101	100Ω 5% 0.062W
3152	4822 051 30222	2.2kΩ 5% 0.062W
3401	5322 117 13057	820Ω 1% 0.063W 0603
3402	2322 704 61302	1.3kΩ 1% 0.063W 0603
3403	5322 117 13051	680Ω 1% 0.063W 0603
3404	5322 117 13034	1.5kΩ 1% 0.063W 0603
3405	5322 117 13046	1.8kΩ 1% 0.063W 0603
3406	2322 704 61302	1.3kΩ 1% 0.063W 0603
3407	5322 117 13034	1.5kΩ 1% 0.063W 0603
3408	2322 704 63002	3kΩ 1%
3409	5322 117 13034	1.5kΩ 1% 0.063W 0603
3410	5322 117 13057	820Ω 1% 0.063W 0603
3411	5322 117 13049	470Ω 1% 0.063W 0603
3412	5322 117 13036	1.2kΩ 1% 0.063W 0603
3413	2322 704 61002	1kΩ 1%
3414	2322 704 65601	560Ω 1% 0.063W 0603
3415	5322 117 13049	470Ω 1% 0.063W 0603
3416	5322 117 13036	1.2kΩ 1% 0.063W 0603
3417	5322 117 13057	820Ω 1% 0.063W 0603
3419	5322 117 13046	1.8kΩ 1% 0.063W 0603
3420	5322 117 13018	1kΩ 1% 0.063W 0603
3422	2322 704 62702	2.7kΩ 1%
3423	5322 117 13018	1kΩ 1% 0.063W 0603
3424	4822 051 30471	47Ω 5% 0.062W
3426	2322 704 61302	1.3kΩ 1% 0.063W 0603
3427	2322 704 61302	1.3kΩ 1% 0.063W 0603
3428	5322 117 13036	1.2kΩ 1% 0.063W 0603
3429	2322 704 62702	2.7kΩ 1%
3430	4822 051 30102	1kΩ 5% 0.062W
3431	4822 051 30102	1kΩ 5% 0.062W
3433	4822 051 30223	22kΩ 5% 0.062W
3434	4822 051 30223	22kΩ 5% 0.062W
3435	4822 051 30223	22kΩ 5% 0.062W
3436	4822 051 30102	1kΩ 5% 0.062W
3440	4822 051 30181	180Ω 5% 0.062W
3441	4822 051 30181	180Ω 5% 0.062W
3442	4822 051 30181	180Ω 5% 0.062W
3701	4822 051 30334	330kΩ 5% 0.062W
3702	4822 051 30103	10kΩ 5% 0.062W
3703	4822 051 30153	15kΩ 5% 0.062W
3704	5322 117 13056	8.2kΩ 1% 0.063W 0603
3705	4822 051 30102	1kΩ 5% 0.062W
3707	4822 051 30681	680Ω 5% 0.062W
3715	4822 051 30333	33kΩ 5% 0.062W
3716	4822 051 30223	22kΩ 5% 0.062W
3717	4822 051 30223	22kΩ 5% 0.062W
3718	4822 051 30273	27kΩ 5% 0.062W
3719	4822 117 13632	100kΩ 1% 0603 0.62W
3720	3198 021 32250	2.2MΩ 5% 0603
3900	4822 051 30759	75Ω 5% 0.062W
3901	4822 051 30759	75Ω 5% 0.062W
3902	4822 051 30759	75Ω 5% 0.062W
3903	4822 051 30101	100Ω 5% 0.062W
3904	4822 051 30101	100Ω 5% 0.062W
3905	4822 051 30102	1kΩ 5% 0.062W
3906	4822 051 30102	1kΩ 5% 0.062W
3909	4822 051 30102	1kΩ 5% 0.062W
3912	4822 051 30102	1kΩ 5% 0.062W
3920	4822 051 30759	75Ω 5% 0.062W
3921	4822 051 30759	75Ω 5% 0.062W
3922	4822 051 30759	75Ω 5% 0.062W
3926	4822 051 30102	1kΩ 5% 0.062W
3929	4822 051 30102	1kΩ 5% 0.062W
3932	4822 117 12864	82kΩ 5% 0.6W
3933	4822 051 30472	4.7Ω 5% 0.062W
3934	4822 051 30102	1kΩ 5% 0.062W
3935	4822 051 30102	1kΩ 5% 0.062W
3936	4822 051 30102	1kΩ 5% 0.062W
3940	4822 117 13574	1.5Ω 5% 1206
3941	4822 117 11748	Fuse 2.2Ω 5% 1206
3942	4822 117 12984	3.3Ω 5% 0.125W 1206
3946	2322 702 60824	820kΩ 5% 0603
3947	4822 051 30393	39kΩ 5% 0.062W
3948	4822 051 30682	6.8Ω 5% 0.062W
3949	4822 051 30222	2.2kΩ 5% 0.062W
3951	2322 702 60824	820kΩ 5% 0603
3952	4822 051 30393	39kΩ 5% 0.062W
3953	4822 051 30682	6.8Ω 5% 0.062W
3954	4822 051 30392	3.9Ω 5% 0.063W 0603
3955	4822 051 30102	1kΩ 5% 0.062W
3956	4822 051 30103	10kΩ 5% 0.062W
3957	4822 051 30223	22kΩ 5% 0.062W
3958	4822 051 30392	3.9Ω 5% 0.063W 0603
3959	4822 051 30682	6.8Ω 5% 0.062W
3999	4822 051 30683	68kΩ 5% 0.062W

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5900	4822 157 11778	5.6µH 0805 10%
5901	4822 157 11778	5.6µH 0805 10%
5902	4822 157 11778	5.6µH 0805 10%
5903	4822 157 11778	5.6µH 0805 10%
5904	4822 157 11778	5.6µH 0805 10%

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6400	4822 130 11564	UDZ3.9B
6700	4822 130 11528	1PS76SB10
6701	4822 130 11528	1PS76SB10
6703	4822 130 11397	BAS316
6900	4822 130 11416	PDZ6.8B
6901	4822 130 11416	PDZ6.8B
6902	4822 130 11416	PDZ6.8B
6903	4822 130 11416	PDZ6.8B
6904	4822 130 11416	PDZ6.8B
6905	4822 130 11416	PDZ6.8B
6906	4822 130 11416	PDZ6.8B
6907	4822 130 11416	PDZ6.8B
6908	4822 130 11416	PDZ6.8B
6909	4822 130 11416	PDZ6.8B
6914	4822 130 11416	PDZ6.8B
6915	4822 130 11416	PDZ6.8B
6916	4822 130 11416	PDZ6.8B
6917	4822 130 11416	PDZ6.8B
6918	4822 130 11416	PDZ6.8B
6919	4822 130 11416	PDZ6.8B
6920	4822 130 11416	PDZ6.8B
6921	4822 130 11416	PDZ6.8B
6922	4822 130 11416	PDZ6.8B
6923	4822 130 11416	PDZ6.8B
6924	4822 130 11416	PDZ6.8B
6925	4822 130 11416	PDZ6.8B
6926	4822 130 11416	PDZ6.8B
6927	4822 130 11416	PDZ6.8B
6928	4822 130 11528	1PS76SB10
6929	4822 130 11528	1PS76SB10
6930	4822 130 11397	BAS316

7101	4822 209 16095	BA7657F
7102	4822 209 15765	74HC4052D
7105	4822 209 73852	PMBT2369
7106	4822 209 17345	M62320FP
7107	4822 209 16095	BA7657F
7108	4822 209 73852	PMBT2369
7109	4822 130 60373	BC856B
7110	5322 130 60159	BC846B
7400	9322 145 66668	TSH93ID
7450	9322 145 66668	TSH93ID
7451	5322 130 60159	BC846B
7452	5322 130 60159	BC846B
7453	5322 130 60159	BC846B
7700	4822 209 60767	LM1881M
7713	5322 130 60159	BC846B
7750	4822 209 71585	74HCT4538N
7751	4822 209 71585	74HCT4538N
7752	4822 130 60373	BC856B
7901	4822 209 16095	BA7657F
7902	5322 209 14481	HEF4053BT
7903	5322 130 60159	BC846B
7904	4822 130 60373	BC856B
7905	4822 130 60373	BC856B
7906	4822 130 60373	BC856B
7907	4822 130 60373	BC856B
7908	5322 130 60159	BC846B
7909	5322 130 60159	BC846B

Side I/O Panel [O]

Various

1016	3104 328 26481	Side I/O assy
1326	4822 267 10975	Soc. CINCH f YeWhRd
1327	4822 267 31014	Soc. headphone
1328	2422 026 05133	Connector SVHS 4p f
1936	2422 025 12485	Connector 11p m
8936	3104 311 05271	Cable 11p/820/11p

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2803	5322 126 10733	680pF 5% 50V
2804	5322 122 32531	100pF 5% 50V
2805	5322 122 32531	100pF 5% 50V
2806	5322 126 10733	680pF 5% 50V
2807	4822 126 14076	220nF +80/-20% 25V
2813	4822 124 22652	2.2µF 20% 50V
2832	5322 122 31863	330pF 5% 63V 0805
2834	5322 122 31863	330pF 5% 63V 0805
2840	4822 122 33177	10nF 20% 50V
2841	4822 122 33177	10nF 20% 50V

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3803	4822 050 11002	1kΩ 1% 0.4W
3804	4822 050 11002	1kΩ 1% 0.4W
3808	4822 051 20008	Jumper 0805
3809	4822 051 20008	Jumper 0805
3814	4822 117 10833	10kΩ 1% 0.1W
3816	4822 051 20008	Jumper 0805
3826	4822 116 52199	68Ω 5% 0.5W
3827	4822 116 52199	68Ω 5% 0.5W
3828	4822 116 52199	68Ω 5% 0.5W
3829	4822 116 52199	68Ω 5% 0.5W
3830	4822 050 21003	10kΩ 1% 0.6W
3835	4822 116 52175	100Ω 5% 0.5W
3842	4822 050 21003	10kΩ 1% 0.6W
4800	4822 051 20008	Jumper 0805
4801	4822 051 20008	Jumper 0805
4802	4822 051 20008	Jumper 0805
4803	4822 051 20008	Jumper 0805

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6801	9322 129 38685	BZM55-C6V8
6802	9322 129 38685	BZM55-C6V8
6803	9322 129 40685	BZM55-C10
6804	9322 129 40685	BZM55-C10
6805	9322 129 40685	BZM55-C10
6806	9322 129 40685	BZM55-C10
6807	9322 129 38685	BZM55-C6V8
6808	9322 129 38685	BZM55-C6V8

Top Control Panel [P]

Various

0346	4822 267 10748	Connector 3p
1701	2422 128 02778	Tact switch
1702	2422 128 02778	Tact switch
1703	2422 128 02778	Tact switch
1704	2422 128 02778	Tact switch
1705	2422 128 02778	Tact switch
8346	3104 311 01401	Cable 3P/1500/3P Wh
8346	3104 311 04671	Cable 3p/1200/3p

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3001	4822 051 20391	390Ω 5% 0.1W
3003	4822 117 13528	200Ω 1% 0.125W 0805
3005	4822 117 11951	2kΩ 1% 0.1W
3009	4822 117 11534	1.1kΩ 1% 0.1W
3011	4822 117 10845	620Ω 1% 0.1W
3999	4822 051 20471	470Ω 5% 0.1W

4001	4822 051 20008	Jumper 0805
4003	4822 051 20008	Jumper 0805
4005	4822 051 20008	Jumper 0805
4006	4822 051 20008	Jumper 0805

Auto Scavem Panel [SC]

Various

1440	2422 025 12485	Connector 11p m
1940	2422 025 12485	Connector 11p m
1955	4822 267 10735	Connector 3p
8440	3104 311 05882	Cable 11p/400/11p

⊣⊢

2000	4822 126 14223	2.2pF 10% 50V 0603
2002	4822 126 13887	4.7pF 50V
2003	4822 126 13887	4.7pF 50V
2004	3198 016 31080	1pF 25% 50V 0603
2006	2238 586 59812	100nF 20% 50V 0603
2008	2238 916 15641	22nF 10% 25V 0603
2010	2238 586 59812	100nF 20% 50V 0603
2012	2238 916 15641	22nF 10% 25V 0603
2014	2238 916 15641	22nF 10% 25V 0603
2016	4822 122 33741	10pF 10% 50V
2020	2238 916 15641	22nF 10% 25V 0603
2038	2238 916 15641	22nF 10% 25V 0603
2040	4822 126 14225	56pF 5% 50V 0603
2041	3198 016 35680	5.6pF 0.5pF 50V 0603
2208	4822 124 41584	100µF 20% 10V
2600	4822 124 80791	470µF 20% 16V
2602	5322 122 32654	22nF 10% 63V 0805
2605	3198 017 41050	1µF 10V 0603
2607	5322 122 32654	22nF 10% 63V 0805

⊣WW⊢

3000	4822 051 30101	100Ω 5% 0.062W
3002	4822 051 30101	100Ω 5% 0.062W
3004	4822 051 30101	100Ω 5% 0.062W
3006	4822 051 30102	1kΩ 5% 0.062W
3008	4822 051 30102	1kΩ 5% 0.062W
3010	4822 051 30102	1kΩ 5% 0.062W
3012	4822 051 30332	3.3Ω 5% 0.062W
3014	4822 117 12903	1.8kΩ 1% 0.063W 0603
3016	4822 117 12902	8.2kΩ 1% 0.063W 0603
3018	4822 051 30681	680Ω 5% 0.062W
3020	4822 051 30471	47Ω 5% 0.062W
3022	4822 051 30393	39kΩ 5% 0.062W
3024	4822 051 30273	27kΩ 5% 0.062W
3028	4822 051 30223	22kΩ 5% 0.062W
3030	4822 051 30683	68kΩ 5% 0.062W
3032	4822 117 12903	1.8kΩ 1% 0.063W 0603
3034	4822 051 30222	2.2kΩ 5% 0.062W
3036	4822 051 30332	3.3Ω 5% 0.062W
3038	4822 051 30561	560Ω 5% 0.062W
3040	4822 117 12925	47kΩ 1% 0.063W 0603
3042	4822 051 30682	6.8Ω 5% 0.062W
3044	4822 051 30102	1kΩ 5% 0.062W
3046	4822 051 30102	1kΩ 5% 0.062W
3048	4822 051 30102	1kΩ 5% 0.062W
3050	4822 051 30561	560Ω 5% 0.062W
3052	4822 051 30561	560Ω 5% 0.062W
3054	4822 051 30102	1kΩ 5% 0.062W
3056	4822 051 30102	1kΩ 5% 0.062W
3058	4822 051 30471	47Ω 5% 0.062W
3060	4822 051 30471	47Ω 5% 0.062W
3062	4822 051 30222	2.2kΩ 5% 0.062W
3064	4822 117 12971	15Ω 5% 0603 0.62W
3066	4822 117 12902	8.2kΩ 1% 0.063W 0603
3068	4822 051 30681	680Ω 5% 0.062W
3070	4822 117 12902	8.2kΩ 1% 0.063W 0603
3072	4822 051 30152	1.5Ω 5% 0.062W
3074	4822 051 30101	100Ω 5% 0.062W
3076	4822 117 11817	1.2kΩ 1% 0.0625W
3078	4822 051 30102	1kΩ 5% 0.062W
3093	4822 051 30152	1.5Ω 5% 0.062W
3106	4822 051 30472	4.7Ω 5% 0.062W
3108	4822 051 30273	27kΩ 5% 0.062W
3110	4822 051 30392	3.9Ω 5% 0.063W 0603
3112	4822 051 30222	2.2kΩ 5% 0.062W
3114	4822 051 30101	100Ω 5% 0.062W
3116	4822 051 30102	1kΩ 5% 0.062W
3118	4822 051 30103	10kΩ 5% 0.062W
3120	4822 051 30103	10kΩ 5% 0.062W
3500	4822 051 30101	100Ω 5% 0.062W
3502	4822 051 30101	100Ω 5% 0.062W
3600⚠	4822 117 13574	1.5Ω 5% 1206
3999	4822 117 12903	1.8kΩ 1% 0.063W 0603
9000	4822 051 30008	Jumper 0603
9002	4822 051 30008	Jumper 0603
9010	4822 051 30008	Jumper 0603
9020	4822 051 30008	Jumper 0603
9033	4822 116 52175	100Ω 5% 0.5W
9045	4822 051 30008	Jumper 0603
9046	4822 051 30008	Jumper 0603
9047	4822 051 30008	Jumper 0603

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5600	4822 157 11867	5.6µH 5%
5601	4822 157 11867	5.6µH 5%

⊣▷⊢

6000	5322 130 80119	BBY40

7000	4822 130 60373	BC856B
7002	4822 130 60373	BC856B
7004	4822 130 60373	BC856B
7006	5322 130 42718	BFS20
7008	4822 130 60373	BC856B
7010	5322 130 42718	BFS20
7012	5322 130 42718	BFS20
7014	4822 130 60383	BF824
7016	5322 130 42718	BFS20
7018	5322 130 42718	BFS20
7020	4822 130 60383	BF824
7022	5322 130 42718	BFS20
7024	5322 130 42718	BFS20
7026	5322 130 42718	BFS20
7040	5322 130 42718	BFS20
7042	4822 130 60383	BF824
7500	5322 209 90559	TDA8444T/N4

11. Revision List

First release